TECH.

PUBLIC LIBRARY
FEB 24 19[illegible]
DETROIT

NATIONAL PETROLEUM NEWS

Refining Technology

EDITION

In this Issue...

● Use of Oil As Fuel Is Economic

Conservation Policy aimed to discourage consumption of this petroleum product would restrict supply of cheap motor fuel which is essential to nation's development, speaker tells Petroleum Division at A.I.M.E. meeting . . . 33

● '37 Drilling Adds New Supplies

Extensive field operations last year added sizable reserve of new oil through new pools discovered, extension of proven fields and deeper drilling, in many sections of the country 38

● Proration Should Cover Drilling

Essential that field operations be included in any effort to achieve equilibrium through any artificial means, petroleum engineers and economists told at A.I.M.E. meeting 36

● New Method to Classify Asphalts

A means for classifying these petroleum products based on physical properties using the penetration index, the mathematical system for which is described R78

● Synthesis Features Lube Patents

Specialized hydrocarbon lubricants for an increasing number of applications are produced from a variety of raw materials or built up from molecular hydrogen and carbon monoxide. The synthetic chemist improves desirable properties and eliminates the undesirable R67

Advertisers' Index . . . . . R-87 and 72

Editorial Index . . . . . R-65 and 32

FEBRUARY 23, 1938

Jim Jones WILL MAKE MONEY THIS YEAR!

JIM JONES is a service station owner in most any city in America. He is the man down the street who cleared his islands of obsolete equipment a few months ago and put in modern new Tokheim pumps. Jim Jones will make money this year! Business conditions mean little to him. For already he has found that new pumps mean new business, and that most of it comes from the station up the street that didn't modernize. If you are losing business to Jim Jones, take stock of your pump equipment now—then call your Tokheim man. Or if you prefer, write to the factory for literature.

QUALITY TOKHEIM
COMPARE THE VALUE!

SMALL—EASY
MONTHLY PAYMENTS

TOKHEIM OIL TANK & PUMP CO.

DESIGNERS AND BUILDERS OF SUPERIOR EQUIPMENT

FORT WAYNE FOR 36 YEARS INDIANA

News By Teletype From 4 News Bureaus

National Petroleum News

News From Oil Industry Everywhere

VOLUME 30 WEDNESDAY, FEBRUARY 23, 1938 NUMBER 8

Protests from Consumers Flooding Congress on Fuel Oil Tax Program

Bill In Congress Seeks Repeal Of Connally Statute

N. P. N. News Bureau

WASHINGTON, Feb. 21.—Representative John M. Coffee, Washington, today asked Congress to repeal the Connally 'Hot' oil law.

Coffee told the House of Representatives that the "conspiracy" which resulted in the Madison convictions "was predicated upon passage of the original Connally Act," and added:

"Since the conviction at Madison I understand evidence has been placed in the hands of the Department of Justice indicating there is equally as large a conspiracy among the major oil companies with reference to the price of crude charged to independent refiners. It is conceivable that this alleged conspiracy is likewise predicated upon the legislation known as the Connally Act which bears the approval of Congress.

"Certainly it is not too much to ask that the committee which recommended this legislation to us for passage go into these newly developed facts, and if they find, as I think they will, that monopolistic practices have been predicated on the Connally Act, then they should come back with a recommendation in favor of my bill."

In his address to the House accompanying the presentation of his bill, HR 9587, Coffee said he thought it "highly important" that the Madison record be secured by the House Interstate Commerce committee, to which the bill was referred. "It should be studied," he added, "and if they arrive at the conclusion I have reached, they will come back with a recommendation that the Connally Act be promptly repealed."

Testimony Quoted

The Washington congressman quoted from the Madison testimony of Robert W. McDowell, Tulsa, vice president in charge of sales, Mid-Continent Petroleum Corp., in support of his assertion that "the conspiracy to raise gasoline prices for which these major oil companies were found guilty was conceived, planned and held ready for execution back in

(*Continued on page* 20)

Credit Extension To Farmers Discussed By Kansas Jobbers

By ALLEN S. JAMES

WICHITA, Kan., Feb. 16. — Legislation and farmers' credits—two subjects in which Kansas jobbers have become vitally interested—occupied most of the business sessions at the 24th annual convention of the Kansas Oil Men's Assn. here Feb. 14 and 15.

Both subjects were timely; legislation because the Kansas legislature now is in special session and Congress in regular session, and farmers' credits because many jobbers right now are being asked to add "one more note" to those they have acquired during the past four or five lean grain crop years.

The discussions did not take the pattern usually followed in talking about the weather, with no one doing anything about it. Particularly was this true with reference to legislation. Under the guidance of Judge Walter E. Brown, of Sinclair Refining Co.'s legal staff and chairman of the Kansas Petroleum Industries Committee, and of the committee's secretary C. E. Holmes, Kansas jobbers both in and out of the association have welded themselves into a united front with a voice that is heard and respected, at least in state legislative circles.

Maintain United Front

One example of this united front was the mass meeting of more than 500 distributors with Gov. Walter A. Huxman at Topeka last Dec. 15, which resulted in a change in directorship of the state Department of Inspections and Registrations and the cancelling of certain rules which had worked a hardship on the distributors in connection with sales of tax exempt motor fuel.

Another example, cited by

(*Continued on page* 24)

'Reduce Taxes' Is Battle Cry Of Illinois Jobbers' Meeting

By E. L. BARRINGER

PEORIA, Ill., Feb. 21.—Mother and the children should be kept out of the cellar coal bin, Illinois oil men decided last week as the Illinois Petroleum Marketers Assn. in annual convention here adopted a resolution against the Boland bill now in Congress to tax fuel oil 1-cent a gallon.

The "mother and children" theme came from Warren C. Platt, publisher of NATIONAL PETROLEUM NEWS, a convention speaker, while G. A. Primm, association secretary, was calling on jobbers to support the fight against the bill. Primm pointed to coal interests back of the bill that would tax the millions of oil industry fuel customers.

The Illinois association adopted, through resolutions, a broad program calling for a reduction in the motorist's and the industry's state and federal tax burden.

In federal affairs the resolutions were to make loans through existing credit organizations available to small business men, to reduce excessive governmental expenditures, and to repeal the tax on undivided surplus. Another resolution called for repeal of the federal gasoline tax.

In state affairs the resolutions were to change the motor vehicle license date from Jan. 1 to April 1, and for the state alone to license automobiles. Cities in Illinois are allowed to issue annual licenses, in addition to the

(*Continued on page* 24)

Several Economic Ills Will Result, Users Pointing Out

By G. T. KELLOGG

N. P. N. News Bureau

WASHINGTON, Feb. 21. — Hundreds of protests from all branches of the oil industry, as well as from "the public", whose votes elect congressmen, are pouring into the offices of the Ways and Means committee with every mail, assailing the cent-a-gallon tax which the coal industry seeks to saddle on fuel oil, committee attaches revealed today.

Not only to the Ways and Means committee, whose draft of a revised tax law is expected to be presented to Congress late this week or early next, but to individual members of Congress from every section of the country, are the aroused people making known their strong opposition to this discriminatory proposal.

Combined Efforts are Rewarded

Efforts of local and state Petroleum Industries committees, oil men's associations, citizens organizations, and individuals who see through the "conservation" blind put up as a front for this legislation, are resulting in a deluge of mail which can hardly go unnoticed—even by a Congress driven to grasping at almost anything in the form of revenue to satisfy administration spending proclivities.

The storm of protest so far raised may or may not be sufficient to keep the Boland proposal out of the draft of the new tax bill as it comes from the Ways and Means committee.

But even if it is excluded, the battle is not over, for the Pennsylvania sponsor of the fuel

Associations Take Lead in Fuel Oil Tax Fight

oil tax has let it be known that if it is kept out of the committee's bill, he will bring it to the floor personally, and make a fight for it there.

Strong on Floor

Boland's strength on the floor of the House is not to be underestimated. As Democratic whip of that body, he has been instrumental in getting a lot of legislation through Congress for his colleagues during the past several years. Now it is his turn — he has a "pet" bill of his own, and, of course, wants to be re-elected by his coal-mining constituency in Scranton on the strength of it.

This sort of horse-trading is as old as Congress — and the most effective way of forestalling it is for constituents of the other 434 congressmen to let them know that their own re-election may be affected by the way they vote on the particular measure on which the trading is based.

No Congressman in the Year of our Lord 1938 is likely to tear down his own fences back in the district, to put new rails in those of a colleague — if he is shown that a wrong vote on a certain measure may have that effect — and 1938 is Congressional election year, it was pointed out.

On the other hand, coal industry groups throughout the country are falling in behind the Boland measure, also on the ground of "conservation."

Predicts 50c 'Gas'

However, if statements of some of that industry's spokesmen are to be relied on, the coal people won't need the "protection" of a tax on fuel oil in order to sell their product very long.

In a recent speech before the Retail Coal Merchants Assn. of Richmond, Va., John D. Battle, executive secretary of the National Coal Assn., said that, "within five years oil for fuel uses cannot be sold at prices to compete with bituminous coal. Within five years the price of gasoline will be 50 cents a gallon."

In a pamphlet, "How the Federal Fuel Oil Tax Will Affect You," the District of Columbia Petroleum Assn. lists seven effects on the fuel oil consumer user. They are:

"You face the possible loss of several hundred dollars which represents the present value of your oil burner equipment.

"You will be taxed as a user of fuel oil, while your next-door-neighbor, who burns coal, would go untaxed.

"This tax would add an average of $21 to your annual fuel oil bill.

"It would impose a 15 per cent sales tax on your fuel oil.

"It might force you to return to the burning of coal, with all of the manual labor involved in shoveling, handling of ashes, and other inconveniences.

"If you are a home-owner, or are contemplating home ownership, you will be directly affected, because such a tax will seriously discourage the building program through an increase in the cost of construction of homes, especially the smaller ones.

"If you are an automobile owner, you will be doubly penalized, because motor fuel can be most economically produced only when there is the fullest use of all of its by-products, one of the chief of which is fuel oil."

Hadlick Protests Tax

Typical of the protests from jobbers and marketers is the letter sent to Chairman Robert L. Doughton (N. C.) of the Ways and Means Committee by Paul E. Hadlick, secretary of National Oil Marketers Assn., in which he declares the association's unalterable opposition to the proposal.

"We view with alarm this proposal to place a 'penalizing' tax on fuel oil without equalizing the competitive condition between different fuels by appropriate taxes. If a tax is justified on fuel oil, certainly a tax on a B.t.u. basis for coal and natural gas would be equally as justifiable," Hadlick said, continuing:

"The distributors of fuel oil would be injured immeasurably; particularly those who have already suffered at the hands of natural gas competition and the unfair sales tactics of the big utility interests that control distribution of such gas.

"The congressmen who appeared before your committee (Boland and Flannery) expressed great concern over the depletion of our oil reserves. Yet, Cong. Boland's original bill in the 74th Congress, and again in HR 3134, proposed, in addition to the tax on fuel oil, a 200 per cent increase in the import duty on fuel oil. The inconsistency of the conservation argument thus becomes apparent. The proposal is merely one to enhance the value and increase the consumption of coal at the expense of the fuel oil distributors and the consumers."

Hadlick also requested, should the committee be inclined to "seriously consider" a tax on fuel oil, that his association and other representatives of the industry be given a day in court.

"Without unduly burdening you at this time, I feel confident we can submit facts and figures at such a hearing that will conclusively show the injustice of selecting one type of fuel for taxation and allowing competitive fuels to go untaxed," he said.

O.B.I. Condemns Tax On Fuel Oil As 'Uneconomic'

By Teletype
N. P. N. News Bureau

NEW YORK, Feb. 21.—Terming the Boland bill, which proposes a tax of 1 cent per gallon on fuel oil for heating "damaging, discriminatory, unfair, uneconomic and widespread in its bad effects," G. Harvey Porter, managing director of the Oil Burner Institute, today urged householders and members of the oil burner and allied industries to communicate with their congressmen, senators and especially the Ways and Means Committee, asking them to take proper action to defeat the bill.

Among the charges that Porter laid against the proposed levy is that it would be a "nuisance" tax, because of excessive collections and administrative costs.

He pointed out that it would be exceedingly discriminatory because it would tax one important fuel while permitting competing fuels to be sold untaxed.

It would penalize no less than 1,500,000 home owners who had installed oil burners to economize on fuel bills and would add an average of $21 to the annual fuel bill of these home owners, Porter said.

It would be equal to a sales tax of 15 per cent on fuel oil for heating, and would increase the heating expenses of approximately 1,400,000 families, he added.

Porter pointed out that this tax would burden many poor families who now use oil stoves for heating their homes.

"The Boland bill would certainly discourage construction and ownership of small homes, which we are now urging nationally," Porter continued. "In addition, it would tend to unbalance the fuel utilization of crude oil — which is conservation — by forcing one of its important by-products out of use. If the price is too high, what will be done with the fuel oil?

"This bill would encourage continuation of the extravagant and wasteful methods which prevailed in the coal industry at the expense of the whole public until the oil burner industry forced them to educate their customers in the principles of economic firing to justify the dollar value of their product".

"Finally," Mr. Porter continued, "this tax would be damaging to the investment of manufacturers, dealers, jobbers and home owners who have invested hundreds of millions of dollars in the industry and its products, as well as jeopardizing the employment of thousands of workers in manufacturing plants, distributors, dealers and jobbers sales offices."

THE BOLAND PLAN

WASHINGTON, Feb. 21.—Congressman Patrick J. Boland, Scranton, Pa., proposes to "equalize" competition between coal and fuel oil by including the following provision in the 1938 tax bill:

"There is hereby imposed on the sale of fuel oil to any person for use by such person for the generation of heat or power, but not for use as fuel for an internal combustion engine, a tax of one cent per gallon to be paid by the seller thereof; provided that as used in this section the term 'fuel oil' includes crude petroleum and any derivative thereof suitable for use as a fuel, but does not include kerosine, gasoline, benzol, benzine, or naphtha."

Tax Resolution Adopted

OMAHA, Neb., Feb. 21.—Directors of the Nebraska Petroleum Marketers, Inc., adopted a resolution opposing the Boland bill tax of one cent on fuel oil at the board's meeting here last week.

Tax On Fuel Oil To Drive Bunker Business Abroad

N. P. N. News Bureau

CLEVELAND, Feb. 21. — American vessels contemplate establishing fuel oil stations at one or more Bahama Island ports, or else coaling abroad, if the proposed fuel oil tax of one cent per gallon is enacted, J. Gilbert Burton of Mobile, Ala., agent for Pure Oil Co. fuel oil, informed NATIONAL PETROLEUM NEWS today.

Neither of the above results of the proposed legislation would be of much assistance to American coal people, Burton commented.

"There has been a very heavy grain movement through Mobile during the past 60 days," he explained. "This grain has been handled almost entirely by foreign tramp steamers of which, I believe, all but two were coal burners. Mobile has always been known as a cheap coal fueling port. Out of these 20 steamers only one took on any coal here and that vessel only took 125 tons. The reason for this is that foreign coal is lower in price than coal on this side and the steamers bunker abroad for the round trip. The heavy trans-Atlantic freight movement is west to east, rather than east to west. Therefore, other things being equal, it is to a steamer's advantage to bunker on the other side for the round trip, thus enabling it to carry more weight in cargo on the west to east voyage.

"One of our customers is a large American steamship company which uses around 1,250,000 barrels of fuel oil a year. Yesterday the company's executive vice president told me that, should the tax be passed, his company would be faced with two alternatives: First, to convert from oil to coal at a very considerable capital expense and purchase coal abroad, as the price abroad is lower than on this side. The second alternative, if it can be arranged, would be to establish one or two fuel oil stations at some foreign port such as Havana or Nassau, taking on fuel oil in transit."

Fire Brings Shutdown

N. P. N. News Bureau

TULSA, Feb. 21.—Fire starting in an agitator caused sufficient damage at the Cosco Refining Co.'s plant at Wynnewood, Okla., Feb. 16 to necessitate a shutdown pending repairs.

Oil Jobber Enlists Customers to Write Congressmen in Attack on Fuel Tax

CHICAGO, Feb. 21.—A campaign among fuel oil consumers, both domestic and industrial, against the Boland bill proposing to tax fuel oil one cent was started last week by the Hughes Oil Co., Chicago fuel oil jobber.

Consumers were told the proposed tax would add 15 to 30 per cent to the cost of their fuel, and opposition could be registered through writing their congressmen.

"Whether or not the proposed legislation is to remain unchallenged is squarely up to you as a citizen and voter," consumers were informed.

"The support of the President is being sought to secure passage of it (the Boland bill)," the circular stated, and "This will likely be done under the guise of 'conservation,' which is a false theory." Enclosed was a copy of the bill.

Hughes Oil began mailings last week, sending the message to every consumer on the company's mailing list, domestic as well as consumer, also to trade associations, oil refiners, publications, and to members of the Chicago Oil Men's Club.

Boland Bill Protested By Kansas Oil Men

WICHITA, Feb. 19. — Protest has been made by the recently formed Kansas Independent Oil & Gas Association to the Kansas delegation in Congress against the proposed federal tax of one cent per gallon on fuel oil.

Identical letters, bearing the signature of H. A. Meyer, managing director of the association, went to senators and representatives, and said, in part:

"This proposal is exceedingly inequitable and its adoption would have widespread adverse economic effects. Aside from the various economic groups affected, more than a million individual consumers would be seriously penalized. Such a tax would be exorbitant to the point where it would practically eliminate the use of fuel oil for heat and power purposes. It would also be discriminatory for it would tax one important fuel while permitting other fuels to be marketed untaxed. . . We submit that to destroy one industry in order to create a larger market for another industry is morally and economically unjustified.

"Proponents of this bill urge it as a conservation measure. Factually it is not, but even if it were it would not result in conservation of our oil resources for in the manufacture of gasoline it is necessary to produce a certain amount of fuel oil and if there is no market for fuel oil, it would become a waste product and such a waste would be reflected in an increase to the consumer in the cost of gasoline."

Gas-Heating Drive Planned

N. P. N. News Bureau

NEW YORK, Feb. 21.—The Association of Gas Appliance and Equipment Manufacturers will shortly launch a nation-wide campaign to promote sales of gas-operated home-heating equipment, taking the form of a prize contest officially beginning April 1 and lasting until Nov. 30. There will be large cash and merchandise awards for outstanding sales activity, to utility salesmen, equipment distributors, sheet metal contractors, and heating and plumbing contractors.

Case AGAINST Fuel Oil Tax

The Case Against the Fuel Oil Tax, admirably summarized by the American Petroleum Industries Committee, is printed on page 57 of this issue of NATIONAL PETROLEUM NEWS.

Representative Patrick J. Boland of Scranton, Pa., signed a pamphlet, "The Case for a Tax on Fuel Oil," which was distributed to all members of Congress. While it was written before that pamphlet appeared, the A. P. I. C. brief presents the arguments against such a proposed tax.

Representative Boland's proposed tax of one cent per gallon on fuel oil has been introduced into the House as H. R. 3134.

How the tax would adversely affect railroads, American shipping and home owners is presented with facts and statistics in the A. P. I. C. brief.—Editor.

N. Y. Legislature Gets Four Bills Regulating Oil

NEW YORK, Feb. 21. — Four bills covering grading, specifications, price posting, bonding and reduction of collection allowance were introduced last week in the New York legislature by Chairman Harold B. Ehrlich of the state's joint legislative committee for the investigation of the oil industry.

Briefly, the bills are as follows:

H. B. 1306 — Creates department of taxation. A board to grade gasoline into at least three grades designated as "premium", "regular" and "motor", with labels for each grade. Provides for public hearings to adopt specifications for each grade. Also for inspection of petroleum products and taking of samples. Also contains a provision for price posting and adherence to such posted prices.

H. B. 1300.—This bill is a simple price posting measure. Requires prices for gasoline, lubricating oils and greases be posted, with no sales permitted except at exact price posted.

H. B. 1301 — Establishes minimum specifications for gasoline. All of the provisions contained in this bill are easily met by the industry. The highlight of it being a minimum of 59 octane required. It sets vapor pressure of 12 pounds in winter, 10 pounds in summer months. It contains a distillation range, sulfur and gum minimum and corrosion test.

H. B. 1302 — Would reduce the allowance for gasoline tax collections from one per cent to one-half of one per cent.

H. B. 1303 — Makes filing of bond mandatory. No minimum or maximum is provided.

Two other bills, H. B. 1304 and 1305 pertaining to tax law violations were introduced by Ehrlich. The first requires the attorney general to prosecute violators. The second would establish a unit of state police to work solely on tax law violations.

TULSA, Feb. 21. — "The Case Against the Fuel Oil Tax" was briefed by the Mid-Continent Oil & Gas Association in a bulletin sent today to all members and trade publications.

The brief is identical to that distributed by the American Petroleum Industries Committee and reproduced likewise by state committees.

Six main reasons why the proposed tax of one cent per gallon should not be adopted are contained in the brief.

Bulkley Reported 'Optimistic' Over Superhighway Prospects

N. P. N. News Bureau

WASHINGTON, Feb. 21 — Backed by a favorable Presidential declaration, Sen. Robert J. Bulkley's "superhighway" plan goes to a hearing Feb. 24, before a subcommittee of the Senate Banking and Currency Committee.

Sen. Bulkley of Ohio, today told NATIONAL PETROLEUM NEWS he is "very optimistic" for the chances of his proposal, which envisions a system of 10 broad superhighways—three stretching from coast to coast and seven from border to border — constructed at a cost of $8,000,000,000 to $10,000,000,000, and financed through issuance of bonds by a government corporation, the bonds to be retired in 60 years through collection of "reasonable" tolls from users of the roads.

Senator Bulkley will discuss his superhighway program over an NBC radio hookup at 6:45 p.m. Feb. 24.

Bulkley's proposal does not contemplate the "excess condemnation" method of making the projects self-liquidating, although he says it would be nothing more than "good business judgment" for the corporation which his bill (S. 3428) would set up, to buy land at strategic points along the superhighways and sell or lease it at the increased value which would accrue to it by virtue of its location on the roads.

The reasons behind his proposal, the Ohio Senator ranks in the following order: (1) Reemployment, (2) public convenience, and (3) national defense.

No 'Forced' Use

"I cannot too strongly emphasize," he said, "that these will be in no manner 'substitutes' for existing roads. They will be built for those who wish to use them, and those who do not, will not be forced to use them." Bulkley said he thought, after they are built, almost everyone who wanted to go any distance would choose the superhighway route.

Obviously, they will be best suited for long-distance travel, rather than 10 or 20 mile hops between adjoining communities. Because of this, condemnation of property all along the right of way would be purposeless, since motorists who get on the road for a trip will be prepared to make the trip, not to stop here and there along the roadside, it was brought out.

Although the bill does not specifically so provide, Bulkley said he thought it gives the three-man board of directors of the U. S. Highway Corp., which it would create, authority to regulate and restrict businesses and other building at the "strategic" points where businesses catering to the motorist would want to locate — intersections with other superhighways, with existing main roads, and so on.

Each highway would have a right-of-way at least 300 feet in width, and contain from four to twelve paved lanes, depending on traffic conditions. The bill proposes further that "appropriate provision shall be made for neutral strips whereever necessary to separate vehicles traveling in one direction from those traveling in the opposite direction; for the separation of buses and other passenger-carrying from trucks and other commercial vehicles; for the elimination of curves wherever practicable; for the elimination of grade crossings and the construction of an underpass or an over pass at each point of intersection of such highway with any other highway or line of communication."

Bulkley has no definite "layout" for the location of the highways, declaring that such a project as this should be studied thoroughly first before any action is taken. It is the purpose of the U. S. Highway Corp. to make such a study. However, he does propose to avoid running the superhighways through cities and rather, to have them connected up with cities near which they pass by laterals, for which existing roads would serve in virtually every instance.

Gratified By Support

The Ohioan says that support among members of the Senate for his plan has gratified him and that, while it has not been unanimous, the favorable comment he has received far outweighs the unfavorable.

Although there has been some discussion among members of the subcommittee looking toward the constitutional possibility of requiring that buses and trucks use the superhighways, the sponsor of the bill (who is also chairman of the subcommittee) doubts the constitutionality of such federal regulation, and says that if the states want to try it, it's up to them.

Proponents of such a requirement are quoted as saying that it would make the motor carriers pay for their right-of-way, as railroads must do.

Several other superhighway proposals have been introduced at this session, as they have at previous sessions for many years, but none have advanced so far as a hearing except the Bulkley bill. Among those who have bills are Sen. Lewis (Illinois), and Reps. Snyder (Pennsylvania), Keller (Illinois), Steagall (Alabama), and Randolph (West Virginia), whose bill is a companion to the Bulkley measure.

Long Range Program

More conservative, Sen. Lonergan (Connecticut) plans to introduce a bill soon which contemplates a long-time program, whereas some of the others would complete the entire project in five years.

Lonergan, who has consulted with the Bureau of Public Roads on his plan, proposes to begin first with construction of toll by-passes to take traffic around big cities on existing highways. Lonergan describes as a "dream" the plans of those who suggest immediately launching a nationwide superhighway program.

Lonergan's proposal is doubtless reflective of the views of the Public Roads bureau on superhighways — which may be regarded as something less than lukewarm. Superhighways financed by tolls might be made to "pay out" in certain, selected, highly-traveled routes, such as from Washington to Boston, via Baltimore, Philadelphia and New York, the bureau concedes, but such vast systems as are contemplated by the several bills might not be such a favorable financial set-up, the roads bureau holds.

President Roosevelt's favorable comment on self-liquidating superhighway proposals in general has led observers here to speculate as to whether he may be seeking to use them as a fulcrum on which his budget-balancing lever might rest in displacing the present federal-aid set up for roads.

The President has asked Congress to eliminate the road appropriation for the present year, and to cut it in half for the next few succeeding years. To back this up, it could easily enough be argued, should a superhighway plan materialize into law, that the federal government "is doing its share, and more" toward road building. This would eliminate some of the fuss now being raised about the cutting of federal-aid funds, it is believed.

Although no formal statement has been made, it is understood the American Automobile Assn. is opposed to toll roads of any and all kinds.

Bill In Congress Seeks Repeal Of Connally Statute

(*Continued from page* 17)

January and February, 1935. All the conspirators were waiting for was word that Congress had enacted the Connally Act, and that the Department of the Interior had set up machinery for its enforcement."

Coffee quotes McDowell as saying during the trial that the "plan" for which the companies and individuals were convicted "was not recommended for operation until the Connally Act or some other legislation was passed that would definitely put a stop to 'hot' gasoline slopping over into the Mid-Continent territory."

Hadlick Comments

Paul E. Hadlick, secretary of the National Oil Marketers Assn., who has opposed the Connally law on the basis that it is a "price fixing" measure, and whose complaints were instrumental in the justice department investigation leading to the Madison case, made the following comment on the new Coffee bill:

"This bill, proposing repeal of the Connally Act, is most timely. The evidence at the Madison trials plainly disclosed that the Connally Act was the one thing that made possible the gigantic conspiracy for which the defendants were found guilty. Certainly acts of Congress such as the Connally Act, which encourage monopolistic practices, should be repealed in the interest of better enforcement of our anti-trust laws and for the protection of the independent oil marketers and the consumers."

State College Oil Meet

STATE COLLEGE, Pa., Feb. 21.—The seventh annual petroleum and natural gas conference will be held at State College, Pa., May 27 and 28, Dr. Sylvain Pirson, chairman of the conference announces. This meeting is sponsored jointly by the School of Mineral Industries of Pennsylvania State College, the Pennsylvania Grade Crude Oil Assn., and the Pennsylvania Natural Gas Men's Assn.

The program is now being worked up under the direction of Dr. Pirson, who is assisted by the production advisory committee of the Pennsylvania crude association, headed by Robert G. Boesler, Brundred Oil Corp., Oil City.

Bureau Of Mines Forecasts Lower Production In March

N. P. N. News Bureau

WASHINGTON, Feb. 21.—Daily average supply of domestic crude oil estimated by the Bureau of Mines to meet March demand is 3,391,600 barrels, and the Bureau adds that demand for the next six months will be met by a daily average production, over that period, of just over 3,400,000 barrels. Production at this level will wipe out the "too high" stocks of finished and unfinished gasoline by the end of September, the bureau says.

The March forecast is 46,600 barrels daily less than the estimate for February; 51,100 barrels less than the actual daily production last March, or 1.5 per cent less, but 5 per cent higher than the demand for domestic crude that month.

Domestic demand for motor fuel in March is estimated by the bureau at 40,680,000 barrels, about one-fourth of one per cent higher than actual demand last March, but about 5 per cent above estimated normal demand for that month. Buying in March, 1937, was actuated to above the "normal" demand as estimated by the bureau by an anticipated rise in the price of crude which did not materialize, it was pointed out.

Motor fuel exports in March have been forecast at 3,600,000 barrels, which apparently high estimate was based on returns from principal eporters, the bureau said. Exports last March were 2,426,000 barrels.

Stocks of gasoline will be increased by 1,900,000 barrels in March, the bureau estimates, bringing them to a peak of about 93,000,000 barrels by the end of the month, compared with stocks of 81,651,000 barrels for the same date a year previous.

Benzol and "direct" sales and losses of natural gasoline have been estimated as 950,000 barrels, making the estimated production of gasoline for March 45,230,000 barrels. This is distributed among the various refining districts as follows, figures being in barrels:

East Coast	6,480,000
Appalachian	1,510,000
Ind.-Ill.	7,720,000
Oklahoma	2,880,000
Kans.-Mo.	2,470,000
Texas Inland	3,590,000
Texas Gulf	10,290,000
Louisiana Gulf	1,380,000
N. La.-Ark.	920,000
Rocky Mt.	1,110,000
California	6,880,000
Total	45,230,000

From these figures, and estimating the yield of straight-run and cracked gasoline in March at 43.3 per cent, compared with 43 per cent in February, the bureau forecasts the refinery crude oil requirements for March as 98,140,000 barrels. Foreign crude run to stills will amount to 2,200,000 barrels, it is estimated, and crude oil exports will amount to 6,500,000 barrels.

Application of the usual methods to the total estimated market demand for domestic crude oil gives the following breakdown by states of origin:

(Daily averages in barrels)

State	Mar., 1938	Feb., 1938
Texas	1,344,900	1,365,700
California	694,600	693,700
Oklahoma	547,700	569,700
Louisiana	239,400	239,400
Kansas	176,700	176,400
New Mexico	105,100	105,100
Michigan	51,600	52,800
Pennsylvania	49,700	50,400
Wyoming	46,400	51,800
Arkansas	38,200	36,800
Illinois	30,700	29,900
Kentucky	13,900	14,500
New York	13,800	14,000
Montana	13,300	12,400
West Virginia	9,700	10,000
Ohio	9,100	9,000
Colorado	4,500	4,400
Indiana	2,300	2,200
	3,391,600	3,438,200

Sioux City Division Closed

SIOUX CITY, Feb. 21.—Standard Oil Co. of Indiana announced here last week conflicting business laws make it necessary to close on April 1 the Sioux City division, that has operated over 17 counties in South Dakota and 17 in Iowa.

HAPPY BIRTHDAY

NEW YORK, Feb. 21.—Feb. 25 is the "not-so-happy birthday" of gasoline taxation, the American Petroleum Institute recalled today. In 1919 Oregon first taxed gasoline to finance highways.

The A. P. I. estimated that state gasoline taxes have cost $6,170,000,000 since 1919 while the federal tax, imposed in 1932, has cost pretty close to one billion, or $975,683,000.

Airlines Gasoline Consumption Gains

N. P. N. News Bureau

WASHINGTON, Feb. 21.—Scheduled airlines of the U. S. flew 66,000,000 miles in 1937, burning 33,606,770 gallons of gasoline and using 629,127 gallons of lubricating oil, according to Bureau of Air Commerce figures.

This compares with a little more than 63,500,000 miles flown in 1936, with consumption of 30,392,923 gallons of gasoline and 675,655 gallons of lubricating oil. The decrease in 1937 in lubricating oil use is said to result from the use of higher-powered engines and lower speeds.

6 Months Gasoline Stocks Objective Is Set Up

N. P. N. News Bureau

WASHINGTON, Feb. 21.—Surveying the record stocks of gasoline on hand at present, which are likely to be augmented during the next month or two, the U. S. Bureau of Mines included in its regular monthly forecast for March an "objective" to be achieved by Sept. 30 in reduction of gasoline stocks.

The bureau stated, under the caption, "Outlook for Next Six Months":

"As finished and unfinished gasoline stocks on March 31, 1937, (81,651,000 barrels) were generally considered too high at that time, contemplated stocks of March 31, 1938 (93,000,000 barrels) may be considered too high by at least about 11 or 12 million barrels.

"Nearly all of this was accumulated after the low point of Sept. 30, 1937; in other words, the surplus would be largely worked off if stocks on Sept. 30, 1938, were no higher than on Sept. 30, 1937, when they were 65,380,000 barrels.

"Using this as the gasoline-stock objective, contemplating an increase of 3 to 4 per cent in gasoline demand, and adjusting the monthly withdrawals from gasoline stocks so as to keep operations close to a uniform level, gives a crude oil demand for the next six months of just over 3,400,000 barrels daily, including crude runs of about 3,200,000 barrels daily, with gains indicated in the fall when the need for storing heating oils will become acute."

Whiting Replies To May Telegram

N. P. N. News Bureau

CLEVELAND, Feb. 21.—The independent refiner today is in the same position the jobber was two years ago, said M. E. Whiting, Clifton Forge, Va., former president of the National Oil Marketers Assn., in a statement to PLATT'S OILGRAM commenting on the recent telegram of Henry May, Tyler, Texas, to Senator Connally, Texas.

May, as president of East Texas Marketing Assn., last week wired Connally charging the Madison verdicts had caused major companies to cease buying in East Texas and asking Connally to take the matter up with President Roosevelt. Connally declined comment on the telegram and referred it to Interior Department's petroleum conservation division.

Replying to May's statement that jobbers who encouraged the Madison suit have "destroyed themselves through elimination of independent supply," Whiting wanted to know what supply has been eliminated.

"The jobber was not in a position to buy materials from the independent refiner two years ago, now the independent refiner cannot secure sufficient market upon which to exist," Whiting added.

"The whole trouble lies in the monopoly elements in the industry, sponsored by the government," Whiting said. "If the controlling factors in the industry continue the present practice, all petroleum resources will sooner or later be owned by the government and will be produced and allotted to the various refiners as requirements necessitate. Naturally, supplying to marketers will be on the same basis. Permit monopoly to run its course and it would destroy itself by its own policies."

Plant Foreman Burned

TALCO, Tex., Feb. 19.—Herman Toups, plant foreman at the Paluxy Asphalt Co.'s plant here was critically burned Feb. 18 when he attempted to stop a vapor leak. Physicians at a Paris, Tex. hospital reported they held little hope for his recovery.

Roy Winters at New Post

WICHITA, Kans., Feb. 21.—Roy Winters has been appointed western Nebraska salesman for the Derby Oil Co., with headquarters at Sterling, Colo. Winters formerly was with the Inter-State Oil Co.

National Petroleum News

Copyright 1938 by The National Petroleum Publishing Co.
Trade Mark Registered U. S. Patent Office.

Published every Wednesday by The National Petroleum Publishing Co.

Warren C. Platt, *Editor and Publisher*
V. B. Guthrie, *Managing Editor*

FOUNDED 1909
Member of Audit Bureau of Circulation and Associated Business Papers, Inc.

Publication office: 1213 W. Third Street, Cleveland, O.
Telephone, CHerry 7672 Cable Address, Plattoil, Cleveland

NEWS BUREAUS

New York, 50 W. 50th Street, Telephone, COlumbus 5-1516 and 5-1517.
Chicago, Buckingham Bldg., 59 E. Van Buren Street, Telephone, Harrison 5901-2-3.
Washington, D. C., 1002 National Press Bldg., Telephone, NAtional 0654.
Tulsa, Okla., 904 World Bldg., Telephone, 3-7132.
Los Angeles, 610-A Hillstreet Bldg., 815 South Hill Street, Telephone, VAndike 2845.

Subscription rate $3 per year in United States and Mexico; $4 in Canada; $4.50 Foreign Countries. Current copies 10 cents; back copies more than two months old 20 cents per copy.

Will Mother Shovel Coal and The East Texas Refiners Quit?

By WARREN C. PLATT, Editor

When President Roosevelt the other day took pointer in hand and lectured to the Washington correspondents on "balancing prices," we wondered if he had anything in mind as to the "higher prices" that his friend John L. Lewis and the coal interests are trying to have placed on fuel oil, for the express purpose of sending a million and a half housewives and their children back into the cellar to shovel coal and ashes?

The President said he was going to solve the problems of our present "new deal" depression by raising the prices that are too low and by lowering the prices that are too high. But as yet, he does not seem to have committed himself, at least in public, as to placing the proposed tax of 42 cents a barrel on fuel oil so as to make its cost prohibitive to the average home owner.

The President has indicated "interest" in the idea that keeping mother out of the cellar with fuel oil is a "luxury," and he has asked for information and has expressed "alarm" at the supplies of petroleum below ground, which are now known to be the largest yet discovered and definitely measured.

The coal friends of the President are loud in their lamentations over not saving more burning for future generations. They insist that the million and a half housewives are "wasting" a great natural resource and that the oil burners must come out of the household furnaces at once. Probably the oil industry can well leave the final decision on that to the women in question.

But getting back to President Roosevelt and what the newspapers call his class room lecture on "balancing prices," the oil industry is not only interested in what the administration is going to do about upping the cost of fuel oil 50% to 70% but also whether it is going to listen to the frantic appeals of the Independent refiners in East Texas who have telegraphed for relief from excessively low and unprofitable prices on refinery products.

These refiners say that since the Roosevelt administration through its Department of Justice, has frowned so severely, on the price raising that was done during the code period and under the auspices of its Department of the Interior, their major company customers have lost interest in their products until today their gasoline is a drug on the market. A number of the East Texas plants have shut down the past few weeks and more will do so, thus eliminating them as competitive factors in the oil markets, these refiners point out.

So the President has two problems in the oil industry for his next class in "balancing prices." If he lets the Lewis forces send mother back to the cellar to swing the shovel in the dirty coal bin and over the gaseous and dusty ash pile, then the problem of low prices for gasoline at East Texas refineries will be all the more acute for much fuel oil is made there. To shut off the fuel oil market also might close those refiners up for good.

Should the President show sympathetic interest in the plight of the East Texas refiners and undertake to do something about their low prices, he will be up against another problem. That will be a certain skepticism as to the lasting qualities of presidential gratitude, on the part of those oil companies that might, perhaps, be in a position to help out the East Texas refiners. The legal departments of these oil companies may remind their executives, should the executives have forgotten, of considerable testimony which which was not admitted in the recent Madison anti-trust case because the government did not want it admitted and which testimony bore on some "price balancing" of a sort three years ago this spring, and the kind words of gratitude of one department of the Roosevelt administration that did not offset the harsh words of another department.

Political Power, Not Better 'Gas' Is Back of State Proposals

A proposed law to have the state grade gasoline was defeated in a Virginia legislative committee the other day evidently on the contention that the law was wanted by the state's agricultural department solely for the purpose of enlarging its staff and political powers.

That undoubtedly is the reason for all of the agitation for state grading and control of gasoline that is occurring in many states. That also is probably the reason for the recommendation of a similar law in New York state by a special oil investigating committee that has been dawdling along there for some years.

In Virginia small and large oil men frankly charged in committee hearing that a desire for political power was all that was behind the move. The state officeholders back of the bill did not attempt to prove their charges that their state was a "dumping ground for inferior gasoline." Like so many public officials these days, state and national, the sponsors of the bill thought they could get the legislature to accept the charge as fact. There is great need these days for truth in some public offices.

While the Virginia hearing was being held, the U. S. Bureau of Mines was issuing a report of a survey of gasoline sold in 21 cities, last summer. The 1150 samples tested showed that the industry was selling universally a better product than the federal government demands in the specifications it writes for its own use. This survey failed to develop any "inferior" gasoline except what was of the lower grade and was sold as such.

But the fight to get a stranglehold on such a large industry as oil will probably only be momentarily slowed down by this disclosure. Men still seek more political power.—W. C. P.

"Heavy Water" Submerging E. Texas Oil Bothers Botts

To the Editor:

I know you get around among scientific people so I am submitting a little problem which you may pass on. It has to do with the East Texas field. As you know, that field has produced many peculiar things in its lifetime, but the following letter that I received the other day from a man down there has me calling for help. The letter said:

"Last Friday, a party phoned me from Kilgore and said that there was going to be a private sale of pit oil Monday afternoon. He suggested that we take a sample of the oil and attend the sale. I knew we were not interested in the purchase of this oil but I thought it might be well to investigate the physical conditions at the pit, so I sent one of my men to Kilgore to pick up a representative of the attorney general's office. He was fully equipped with helper, a thief, oilcans, rubber boots and all the paraphernalia for securing representative samples.

"When they arrived at the site, nothing could be seen but a wide expanse of flood water. He asked the guide where the pit was located and he was informed that water completely covered the pit so that it could not be seen, but that the oil was down there under the water some place.

"It seems impossible that a sale could be made under such conditions, but an emergency sale was made this afternoon and 14,410 barrels of pit oil were sold to - - - - - - Pipe Line Corp. for $2,820. I saw the check this afternoon, and was told that the oil was to be delivered to one of the refineries. . . . . ."

Now, Mr. Editor, this sort of takes my ace. I am quite familiar with wells in that field which though only 40 to 50 feet deep were set up on the books as producing from the Woodbine sand at 3500 feet. I know also about the pipeline systems which delivered far more oil than they received at the wells, which circumstance kept the authorities puzzled for quite a while. Then, it was commonly known, East Texas oil was inherently whimsical and given to playing pranks on the federal and state officers. Every now and then they would personally observe yields of 125 per cent gasoline from the crude, to say nothing of numerous other byproducts totalling, maybe, 75 to 100 per cent more. It depended somewhat on whose refinery was under observation. Yields varied inversely to plant size and investment.

I could recite many more peculiarities of the field but none would match this latest reported oddity—oil that stays under water. This is the thing I want you to take up with your technical friends. The pit whose contents were to be sold, as related in the letter, was one of the numerous earthen tanks which at one time or another had some oil in them. The state took charge of this one a while back and this hurried sale was on the theory that the river was going to wash out the dike which confined the oil, thus creating a big fire hazard as well as ruining the fish for many miles in both directions. But, as you note, the oil didn't get away; it remained on bottom when the flood came.

Now, I have been reading a little about this "heavy water" that the chemists have produced and maybe that is the first angle of our investigation. Possibly the waters of the Sabine River are too dense to permit oil to come to the top. Or, it may be another of those peculiar properties of East Texas oil. The oil in this pit may have been what was left after some plant took out 125 per cent gasoline.

I haven't been able to investigate this case personally and get the answers to several pertinent questions, such as did the river go down and if so, was the oil still there and how come the buyer was so certain that he would be able to get to his property without using a diver and another good question is, why isn't the state informed on the character of the oil so that there need be no excitement about it in flood season. But, even without the answers to such inquiries, there is plenty of ground for the chemists to get to work on the phenomenon.

Yours truly,
Ellick Botts,
Consulting Pumper

Oil's Mechanical Problems Topics At ASME Meeting

N. P. N. News Bureau

LOS ANGELES, Feb. 21.—Deep well drilling, pumping, oil transmission line design, oil furnace and combustion design and problems associated with design of diesel tractors, are among the important subjects which will be treated by nationally known engineers and technologists at the spring meeting of the American Society of Mechanical Engineers here March 23-25. The meeting will be held during the Western Metal Congress which continues from March 21 through March 25.

R. L. Keyes, drilling superintendent of The Texas Co., will show some of the serious problems in "Modern Deep Drilling" which he has encountered in some of the deep wells in the West. In the same meeting, March 23, "Deep Well Pumping" difficulties will be outlined and their solution discussed by C. J. Coberly, of Kobe, Inc.

Instrumentation and process control equipment will be discussed by L. G. Beam and A. Noble, of the Bristol Co., under the subject of "Pressure Pipe Thermometer Systems"; R. L. Goetzenberger and W. A. Rolnick, of Brown Instrument Co., will have something new to discuss in "Pyrometers", both papers being scheduled for March 23.

The petroleum industry will have a second inning the evening of March 23, when Fritz Karge, Union Oil Co. of California, will outline design problems in "Transmission Systems for Heavy Oil". Many new ideas have been brought forward during recent years in "Modern Combustion Furnaces", and A. L. Baker, of M. W. Kellogg Co., will show what that company is doing in improving that important item of refinery equipment.

Fuel Utilization

The technology and technique of petroleum fuel utilization has also made remarkable strides during recent years. Keeping pace with this advance, O. F. Campbell, combustion engineer of Sinclair Refining Co. will give some new ideas on "Combination Oil and Gas Burners" March 24. "The Technique of Burning Fuel Oil and Natural Gas" will be discussed by F. G. Philo, superintendent of steam generation for the Southern California Edison Co.

The meeting's activities on oil industry developments will be completed March 25, with R. G. Folsom's description of the new deep well testing laboratory at the University of California.

Diesel-powered trucks, buses and tractors are coming into wide use on the Pacific Coast, and C. G. A. Rosen, of Caterpillar Tractor Co., will talk on some of the mechanical problems in connection with the design of engines for these types of equipment.

Allred To Fight Tidelands Claim

By Teletype
N. P. N. News Bureau

TULSA, Feb. 22.—Governor James W. Allred of Texas has announced he will appear before the Judiciary Committee of the House in Washington Feb. 24 to oppose a congressional resolution directing an investigation to determine the rights to submerged coastal areas.

The Texas governor's opposition to any federal claim to valuable oil lands in the Gulf of Mexico off the Texas coast is due to the unique position Texas occupies with reference to "public domain." When Texas was a republic its legislative body, in defining the republic's public domain, included all areas in the Gulf of Mexico for approximately 10 miles from shore.

When Texas ceased to be a republic and joined the union, one of the provisions of the treaty was that Texas retain all her public domain. There are not, therefore, any federal lands within the state of Texas except those which have been bought by the federal government, or which have been transferred to the government by deed from the state of Texas.

Texans opposing any attempt by the federal government to claim the submerged coastal areas state that both the U. S. and the people of Texas would have to ratify such a step and that Congress has no power in this particular case.

The resolution which Gov. Allred will oppose already has passed the Senate.

Anti-Diversion Amendment

RICHMOND, Va., Feb. 21.—Favorable action by the Virginia senate is expected this week on the resolution calling for an amendment to the state constitution prohibiting diversion of highway funds. The measure (SJR 13) was reported out of the Senate Courts of Justice Committee last week by a unanimous vote.

Sloan Dies in Tulsa

By Teletype

TULSA, Feb. 22. — James Wallace Sloan, 68, active in the oil business from Pennsylvania to Mexico for over 40 years, died at his home here Feb. 21. He was president of the Oklahoma Iron Works, an affiliate of the International Supply Co.; president of the Bradshaw Oil Co., and of the International Supply Co., and vice president of the Thompson Oil Co.

Legislation, Labor, What and How to Sell—

Jobbers Discuss Farmer Credits

(*Continued from page* 17)

Judge Brown, was the declaration that, in his contacts recently with Kansas legislators, they have invariably remarked, "You oil fellows certainly are active; some of this proposed legislation I know nothing about, but if I keep having committees of oil men calling on me I will know something about it by voting time."

The jobbers accordingly, at their annual meeting, got down to business and discussed proposed legislation from the standpoint of what would be good and what would be bad for their interests.

Fight Fuel Oil Tax

No resolutions were adopted with reference to state legislation. The jobbers apparently believed, after studying their record of recent months, that they could handle the matters in a more advantageous way. The members did vote, however, resolutions opposing any federal tax on fuel oil, and favoring removal of the federal tax on gasoline.

Judge Brown outlined to the jobbers the legislation that has been proposed at the special session of the Kansas legislature. Most of the legislation proposed, he pointed out, was designed to raise more revenue.

One proposal, he said, was the doubling of the ton mile tax on trucks, with a clause which will affect every truck operator. At the present time there is a 25-mile exemption.

Another proposal is the doubling of the license fee on passenger automobiles. Kansas at present has the lowest license fee on autos in the country, and Judge Brown expressed doubt that the new bill will be passed.

"Gas" Tax Proposal

The speaker warned against a proposal to increase the gasoline tax one cent in order to vote a bond issue to be paid by the revenue from the additional one cent. He said that the present tax of 3 cents could be cut to 2 cents, with elimination of tax exemption for agricultural purposes, without reducing the amount of money now being received from the motor fuel tax. Another proposal in the hopper, Judge Brown said, was a bill to cut the tax to one cent, but make it apply to all petroleum products, such as gasoline, kerosine, distillate, tractor fuel and diesel fuel.

An echo of the mass meeting last Dec. 15 is contained in a bill being prepared which would eliminate the so-called "pink slip" now required by law to be mailed in by the farmer buying tax exempt gasoline in order that the seller can claim his exemption when remitting tax collections to the state. Judge Brown said the oil industry should oppose that specific proposal because the only check the state then would have on exemptions would be the distributors, and they might become the "goats."

One legislative proposal which he thought was sound, Judge Brown said, was the one which would postpone automobile license registration date to April 1. In states which favor the later registration date, he said, the sale of motor fuel in the early months of the year has not shown as great a percentage decline as it has in states which require registration at the beginning of the new year.

Tax Free Class

Concluding his talk Judge Brown said that there is a class of people growing up in the country who have made their entire livelihood off state and federal government and who have never had to pay taxes, and this class is tax conscious only from the viewpoint of keeping themselves in jobs. All business men, he said, are going to have to take a more active part in legislation or politics, whichever one desires to call it, or the taxing authorities will move in and tax the business men out of existence.

The association's members called in Dudley Doolittle, of the Farm Credit Administration, to talk to them on "Farm Credits." While Kansas was the only state to lose population in 1937, Doolittle said, the farmers now are paying off loans faster than they are making new ones, and foreclosures now are being made mainly where the applicant shows a disinclination to accept his responsibility.

"The trouble with most of us," Mr. Doolittle said, "is that we do not look more carefully into the details of a credit risk. The FCA's application for a farm loan contains, among other things, a list of over 500 questions that must be answered before the applicant's request is even taken up by the committee. My suggestion to you, therefore, would be to check in carefully on everyone who wants time credit."

E. M. Taylor, president of the Kansas jobbers' association, during the discussion following Doolittle's talk, told members that his company had gotten away from the old method of having a farmer merely sign a note. "We now have a form which lists all the important facts we need to know about the applicant," he explained. "We thought we would have a little trouble getting all the information, but we found that by judicious explanations the applicants were willing to fill out the questionnaire. "We have left space for the applicant to fill in, stating just when and how much he will pay on the account, how much of the payment he expects to come from sale of grain, how much from his soil conservation or other federal aid, et cetera. We have found the plan highly beneficial the past two or three years of dust, drouth and poor crops."

Included on the program also was a talk on "Merchandising" by Kenneth W. McFarland, educator of Coffeyville, Kans., and a talk on "More Power for Your Tractor", by a representative of the Ethyl Gasoline Corp. This was along the lines of a similar talk made at the Northwest Petroleum Assn. meetings late in January. (NATIONAL PETROLEUM NEWS, Feb. 2, Page 36.)

Ralph R. Mathews and Arthur Evans, of the Battenfeld Grease & Oil Corp., Kansas City, staged a short skit, "How to Make a Grease Sale." Tom Collins, of the Kansas City Journal Post, talked at the banquet on "Why People Don't Like Us."

Ill. Officers Reelected

PEORIA, Ill., Feb. 21.—P. D. Sweney, of Peoria, Sweney Gasoline & Oil Co., was re-elected president of the Illinois Petroleum Marketers Assn. at the annual convention here last week.

Wallace E. Wright, of East St. Louis, Crescent Gasoline & Oil Co., was re-elected vice-president. G. A. Primm, of Springfield, was re-elected executive secretary.

Four of the five directors whose term expired this year were re-elected. They are M. C. Hill, of Chicago, Johnson Oil Refining Co.; W. T. Leverenz, of Danville, Danville Gas & Oil Co.; Charles Johnson, of Kewanee, Johnson High Test Oil Co.; and William Breitweiser, of Belleville, New Era Oil Co.

The new director is Stanton Smith, of Rockford, Smith Oil & Refining Co.

'Reduce Taxes' Jobbers Demand

(*Continued from page* 17)

state levy. Diversion of gasoline tax funds was protested also.

The retailers, on the program the second day of the convention, adopted a resolution favoring the Biermann bill now in Congress to divorce marketing from other branches of the industry.

Officers of the association were re-elected and four directors whose terms expire this year were returned. Association business was conducted at closed sessions Feb. 16 and 17. Formal programs were conducted during the afternoon sessions. The annual banquet, entertainment and ball was held Feb. 16.

The first afternoon program started with J. S. Keller, of Chicago, the Chek-Chart Corp., speaking on increasing profits through the sale of motor oil, lubrication service and accessories.

Platt spoke on the open tank car market, pointing to the advantages of jobbers participating through open market buying, reviewing the old-time jobbers who built a business on selling gasoline under their own brand, and to factors that have been affecting the open market.

The Illinois unemployment act was discussed by O. J. Junkhan, Peoria, of Sweney Gasoline & Oil Co.

The final speaker was Fred Blumenkamp, of East St. Louis, a jobber and assistant secretary of the Illinois Petroleum Industries Committee. He reported the state was being organized on political subdivisions, and that 65 committees have been established.

Illinois motorists, he said, provide 34.5 per cent of the state's taxes. The motorist's annual taxation is $43, gasoline taxes being $27 and license fees $16.

Blumenkamp called for oil men to be elected to legislative halls, even to the White House. Oil men, he said, could levy taxes on oil and other taxes better than present legislators on account of their business experience.

"Dealers Day" was Feb. 17. Dealer problems were discussed by C. E. Ragan, president of the Gasoline Retailers Assn. of Metropolitan Chicago, and Carl Hodges, secretary of the Illinois Gasoline Retailers Assn.

Some Talk Between Sessions at Jobbers' Meet

Wage and Hour Law Called Unfair In Service Station Operations

WICHITA, Kan., Feb. 16. — One of the new problems confronting Kansas jobbers is what George P. Nissen of the Kent Oil Co., Salina, calls the "truck-side station."

"We used to consider the track-side station quite a problem," Nissen explained. "Now we have the truck-side station—a service station at which has been installed sufficient underground storage to take a transport truck load of motor fuel—some 2000 to 4000 gallons. The pump on the station's island is used to fill the auto tank, the farmer's drum or the station owner's tank wagon.

"Savings made possible through elimination of the bulk plant operating expense in many instances are passed on to the customer in part or in whole. It is difficult at times to know just what is 'normal' retail price in a community. I have seen from half to a dozen different prices posted in one small community."

"That isn't all," added A. F. Geyer, of the Dixie Oil Co., Waterville. "It is getting so we don't know what is a competitive price. The farmers are not telling us as readily as they once did at what price they are buying. 'Special deals' are more common."

Wage Bill Criticized

The undivided profits tax is not a serious problem with him, Geyer said, but some of the proposed legislation is causing him concern. He mentioned specifically the proposed wages and hours bill. "In a factory where the employes hit a steady pace from the time they start work until they quit," Mr. Geyer explained, "the proposal may be all right. But it should not be applicable to all workers, the service station men, for example. They may work steadily for 30 minutes and then stand or sit around and do little for another 30 minutes, before they have any more work to do. A six-hour day just isn't applicable to that type of worker."

More Farm Paper

Several of the jobbers from the western half of Kansas talked confidentially about credits. They admit they all are holding a little more farmer paper than they want. "We are going to have to take a few more notes this year," one of the jobbers ruefully remarked. "We don't want to, but we know those farmers will pay if they ever get a good crop year. Maybe this is the year."

There was considerable cheering, meanwhile, when President Ed Taylor, who operates the Kansas Home Oil Co. at Kinsley, announced at the meeting Feb. 15 that a steady rain was falling throughout the "dust bowl" section of the states.

One of the most serious problems of the past year which the Kansas jobbers apparently have solved was the wiping out of the state's claims for motor fuel tax because some of the farmers had failed to send in the so-called "pink slip." Ed Taylor of Kinsley said the state had him charged with $750 worth of the tickets at the time Gov. Walter A. Huxman, at the mass meeting of jobbers in Topeka Dec. 15, announced the state would accept the jobbers' tax remittances although the pink slips were not in, provided there was no apparent irregularity in the tax reports.

The problem of dyeing tax exempt gasoline also appeared to be solved, but several of the jobbers who had gone ahead and bought the dye from the state were wondering now what to do with the dye and how they could get their money back now that a district court has enjoined the state for enforcement of its order.

There seemed to be some question in the minds of a few as to the outcome of the case against the state if it is appealed to the state supreme court. Judge Walter E. Brown of the Sinclair Refining Co. told several of the jobbers that the state had admitted that the dye it was to sell cost approximately $9000 a month, but that the oil industry was going to have to pay out about $2000,000 a year. "Which is like the sheriff," Judge Brown said, "coming to you and telling you that your assessment was $10 for the hiring of deputies 'because the county could not afford to hire them.' "

Adopts Militant Program on Taxes

COLUMBUS, O., Feb. 21.—The first annual meeting for Ohio of the chairmen, and other officers of the county committees of the American Petroleum Industry Committee of Ohio was held here today. More than 200 were present. They represented 63 county committees in Ohio with a total membership of nearly 6000.

Wendell Phillips, of the legal department of the Ohio Oil Co., chairman of the executive committee, presided. The speakers and their subjects were:

Warren C. Platt, editor of NATIONAL PETROLEUM NEWS, who told of the various types of government regulatory attacks being attempted on the industry.

E. L. Heger, Pure Oil Co., and chairman of the Cincinnati committee, told of the long negotiations there for the enactment of a sensible ordinance to protect the city and oil plants

(*Continued on page* 26)

Ideas To Boost Merchandise Sales Discussed Among Illinois Jobbers

PEORIA, Feb. 18.—Everett E. McVicker, operating the Silver Service Oil Co. at Taylorville, Ill., went home from the Illinois Petroleum Marketers Assn. convention here with an idea he thinks will boost his sales this year.

For some time he has been thinking about the low volume of accessory and lubrication sales. During the convention he heard J. S. Keller, of Chicago, the Chek-Chart Corp., talk on increasing profits through pushing the sales of these lines. That was like putting a burr on McVickers chair.

Now he is considering putting his service station men on a commission, dropping all salaries, and seeing if that will stimulate sales.

The Silver Service company has been in business four years, is open 24-hours daily and employs five men. McVickers has a trackside set-up, and is considering building a bulk plant as the present plant is leased.

An Illinois convention would not be complete without C. S. Rosenthal of Chicago, who runs the Apex Motor Fuel Co. Charley is always browsing around the hotel lobby and exhibit hall. For the meetings he comes early, stays to the end, and sits right down front.

He has been attending Illinois conventions since the first one 16 or 17 years ago, and has only missed two. One was when he was ill, the other was the following year while he was south regaining his health.

Maybe other oil men have a longer convention record than Charley Rosenthal, but until they are heard from he can be crowned the official champion oil convention goer.

W. T. Leverenz of Danville, an association director, has a new product to sell at his Danville Gas & Oil Co. one-stop station, a device attached to the steering column to stabilize steering.

The station specializes in automotive electrical service. The steering accessory has been brought out by the electrical supply company serving the station. Leverenz claims the accessory will hold the car on the road in case of a blow-out. The retail price is $19.50 and the one-stop station is going to try and sell lots of them this year.

Russell Williams, of Indianapolis, was at the Illinois convention visiting with jobbers of his Bonded system. He raised the point as to what causes dealers and lessees of stations handling nationally advertised gasolines to feel they must undersell local brands to be competitive. He asked whether it is fair to assume this is an indication of a break-down in the public acceptance of national brand products.

For illustration, Williams pointed to many instances where lessees post a price 2-cents below local brands and asked if this is an indication that the "Iowa Plan" is bringing about a change in the consumer's conception as to where he should buy.

Stage and radio have long had sister acts. The Illinois association has a brother act—Charles and Harold Johnson. Both are well known oil jobbers, farm owners and expert horsemen. Both have named their companies Johnson High Test Oil Co. Charles markets around Kewanee and Harold has headquarters in Freeport. Charles was re-elected an association director last week.

in case of future Ohio river floods.

Secretary Patrick, of the West Virginia Industries Committee, spoke from a chart of the typical Ohio motorist, J. L. Marsh, executive secretary of the A. P. I. C., told of activity planned for the year.

E. V. Weber, of Cincinnati, president of the Ohio Petroleum Marketers Assn., urged greater cooperation among oil men in the state.

Victor Scales of New York, director of publicity of the American Petroleum Industries Committee, described the national publicity work.

Congressman Harold Mosier, of Ohio, acknowledged thanks of the oil men for his work against excessive taxes.

M. F. Hanning of Cleveland, attorney of the executive committee, and Hubert B. Fuller, counsel for the Ohio marketers' association also spoke.

The year's program as presented by Secretary Marsh and incorporated in resolutions adopted provided for a fight to eliminate the "liquid fuel tax," which is an extra cent levied in conjunction with the regular Ohio gasoline tax; for a battle against any diversion of 'gas' tax funds whatsoever from road purposes and for cooperation for a constitutional amendment to this end, and to fight for the repeal of the federal gasoline and lubricating oil taxes.

New Speakers Added To Indiana Program

INDIANAPOLIS, Feb. 21. — Additional speakers for the annual spring convention of the Indiana Independent Petroleum Assn. have been announced by R. M. Stith, Stith Petroleum Co., president.

Warren C. Platt, editor and publisher, NATIONAL PETROLEUM NEWS, will talk on "An Open Competitive Tank Car Market."

Frank Moore, assistant to the manager of sales promotion training, Continental Oil Co., Chicago, will talk on "Merchandising for Profits."

Other speakers, previously announced, are: Leo M. Christiansen, vice president, Atchison Agrol Co. Inc., manufacturer of Agrol, alcohol-gasoline blend, Atchison, Kan.; Robert M. Bowes, Bowes "Seal Fast" Corp., and Barclay Acheson, associate editory Reader's Digest. The latter has spent 10 years in Near East Relief operations.

The meeting and trade exhibit will be held at the Hotel Severin March 2, 3 and 4. All speakers will appear March 3.

He Gave Away a Glass Tumbler, Now on Trial in Criminal Court

DETROIT, Feb. 22.—Because he gave away a glass tumbler, Harry J. Victor of Detroit, owner of three gasoline stations known as Liberty Stores, went on trial yesterday in Recorders Court under criminal charges alleging violation of the premium section of Michigan's fair trade law.

The case, docketed as the People vs. Harry J. Victor, is the latest in a long series of proceedings instigated by Wayne County Prosecutor Duncan C. McCrea on complaint of the Retail Gasoline Dealers Assn. of Michigan.

Five gallons of gasoline were purchased by county officers at one of Victor's stations, Assistant County Prosecutor Paul Mayrand said, and a glass tumbler was given as a premium. Michigan's law prohibits giving of premiums in the petroleum industry, selling at discriminatory prices with intent to destroy a competitor, or selling below cost. The case against Victor is expected to review the constitutionality of the premium section of the law.

Meanwhile, the examination in Recorders Court of Stark Hickey of Detroit, executive of Stark Hickey, Inc., gasoline retailer, has been postponed until March 7. The examination was broken off in the midst of proceedings to make way for the murder trial of Margaret Tack (acquitted of shooting her lover) and is now delayed while the defense attorney is out of the city.

Examination of Hickey by Recorders Judge Donald Van Zile is similar to grand jury proceedings and is to establish probable cause of violation of the Michigan Fair Trade law. Prosecutor McCrea said he believed the court would also pass on the constitutionality of the law. More than a score of other suits instigated by dealers against their larger competitors await the outcome of the Stark Hickey case.

* * *

Charge Oil Firms With Price Plot

DETROIT, Feb. 21.—The Gulf Refining Co. and the B. F. Goodrich Co. were charged with unlawful conspiracy in restraint of trade in an affidavit filed Feb. 19 before Recorders Court.

A similar affidavit was signed against the Standard Oil Co. (Indiana) and the Citrin-Kolb Oil Products Co., local Stanolind jobber.

The affidavits were sworn to by Detective James Bennett of the Detroit Police Department and warrants issued by Recorders Judge George Murphy.

"The warrants are the outgrowth of an investigation conducted by my office on the petition of more than 1000 local retail gasoline dealers," said Wayne County Prosecutor Duncan C. McCrea.

Members of the Retail Gasoline Dealers Assn. of Michigan asserted discriminary practices in a petition circulated recently.

At that time Rankin P. Peck of Detroit, secretary of the dealers association, said: "The root of our troubles (price wars) is the price discriminations. The major oil company sells to the rubber company, for example, at much less than to its own dealers. The rubber company, in passing some of this saving on, sells to dealers handling their products below the prevailing tank wagon price. These favored dealers, with a long margin, cut the retail market."

Five counts are cited in each warrant. They allege violation of the common law and the statutes of Michigan in unlawful conspiracy in restraint of trade and discriminatory practices in selling to one dealer at less than to other dealers.

The charges were brought under older laws, Paul Mayrand of Detroit, assistant county prosecutor, said, rather than the recent Fair Trade law, whose constitutionality is under attack in Detroit Courts.

Crude Stocks Gain During February

N. P. N. News Bureau

WASHINGTON, Feb. 21.—Crude stocks continued the general upward trend, begun in Mid-December, during the week ended Feb. 12, reaching 304,915,000 barrels on that date, a gain of 421,000 barrels over the stocks of Feb. 5, according to Bureau of Mines figures.

Crude stocks on Feb. 13, 1937, by way of comparison, were 286,158,000 barrels. Stocks by grades, showing changes, follow:

(Thousands of Barrels of 42 Gals.)

Grade	Feb. 5	Feb. 12	Chng.
Penna. grade..	4,289	4,279	— 10
Other Appal...	865	881	+ 16
Lima-N. E. Ind.-Mich ..	1,074	1,073	— 1
Ill.-S. W. Ind...	9,672	9,642	— 30
N. La.-Ark....	7,970	7,971	+ 1
W. Tex and S. E. N. Mex.	30,945	30,690	—255
East Texas ...	25,699	26,196	+497
Other Mid-Con.	126,936	126,968	+ 32
Gulf Coast	24,537	24,032	—505
Rocky Mt.	23,835	23,870	+ 35
California	25,655	26,447	+792
Foreign	3,717	3,516	—201
Total reported	285,194	285,565	+371
*Unreported ..	19,300	19,350	+ 50
Total stocks..	304,494	304,915	+421

*Estimate.

Sullivan Elected Head

NEW YORK, Feb. 21.—W. H. Sullivan was elected president of Gasoline Products Co. here at a meeting of the board of directors. Sullivan formerly was vice-president and treasurer. He will continue as treasurer as well as assuming the duties of president, which were left vacant by the resignation of W. F. Moore, who joins The Texas Company as assistant manager of purchasing.

Golden Wedding

N. P. N. News Bureau

WICHITA, Kan., Feb. 17.—C. L. Henderson, vice president of Vickers Petroleum Co., and Mrs. Henderson returned to Wichita Feb. 14 from Knoxville, Tenn. where they attended the golden wedding anniversary of Mr. Henderson's parents, Dr. and Mrs. J. D. Henderson. Dr. Henderson also celebrated his fiftieth year as a physician at Knoxville.

Fished A Grease Job From The Ocean

N. P. N. News Bureau

TULSA, Feb. 21.—A woman living in South Hampton, Long Island, can get her automobile lubricated and washed free if she ever visits Sapulpa, Okla., because she fished from the Atlantic ocean a balloon that had been released at the Oklahoma town.

The balloon, one of hundreds that were displayed at service stations of the Mid-Continent Petroleum Corp. in Tulsa and vicinity recently in connection with an advertising campaign, was inflated with gas by Don H. Judd, operator of the Firestone Service Store at Sapulpa. Attached to the 3-foot balloon was an envelope in a cellophane package offering the free lubrication and wash job to anyone finding the balloon. Judd thought one of his Creek county neighbors would be the lucky finder.

But Judd recently received a letter from Jessie P. Lutz stating she found the balloon in the ocean near her home.

Sun Co. Income Increases; Taxes Beat Its Payroll

N. P. N. News Bureau

CLEVELAND, Feb. 21.—Net earnings of the Sun Oil Co. in 1937 were $9,544,085, J. Howard Pew, president, said late last week in his annual report to stockholders. This figure was after depreciation, amortization, depletion, interest and taxes, including the federal undistributed profits tax.

After deducting $600,000 for preferred dividends there remained earnings of $4.17 per common share prior to an eight per cent stock dividend. Earnings in 1936 were $7,563,554, or $3.44 per share on common stock after preferred dividends. The usual cash dividend of $1 per common share was paid in 1937.

Capital expenditures of approximately $14,000,000 and all operating and repair costs, were met through current receipts, President Pew said. Of the capital outlay, $6,500,000 went to production, $2,660,000 to refineries, $3,320,000 to marketing, $1,020,000 to the marine department, and the remaining $500,000 to various other improvements.

Income Sources

"As to the sources of the company's earnings," the report continued, "before federal income taxes, as among the various branches of the business, exact determination is impossible. But if we use, as the basis of our profits on crude oil production the posted prices of crude oil in the respective fields; and if we take, as a basis for determining market profits, the best data available on wholesale markets, then we arrive at the following figures:

For producing, including crude pipeline operations: $1,843,458. Refining and transportation by tank ship, barge, etc.: $4,628,919. Marketing and marketing transportation: $3,815,317. Other sources: $1,102,734.

Sun Shipbuilding

The Sun Shipbuilding Co., which showed a small loss in 1936, produced net profits of $738,413, in 1937 after all taxes.

"During the year it completed construction and delivery of nine tankers and entered 1938 with orders for nine tankers, representing approximately $21,000,000," the report said. "Since January 1, the company has received orders for three more tankers, representing about $9,350,000."

By a policy of plowing earnings back into the business, Sun has increased its total assets from $85,000,000 at the end of 1929 to $128,000,000 at the end of 1937.

The company's average payroll for 1937 numbered 13,085 as compared to 12,819 in 1936. Under the Iowa plan 1205 station attendants lost their places on the company payroll but of these 429 became lessors of Sun filling stations.

Taxes paid by and collected by the Sun Oil Co. greatly exceeded its salary and wage fund, which was $26,149,180 in 1937, President Pew stated. He reported the company's federal taxes as $2,402,711 and other taxes as $2,852,966, or a total of $5,255,677. On sales taxes on gasoline and lubricants, the company collected for state and provincial treasuries, $22,836,070 and for the federal treasury $7,392,300. Its grand total of taxes was $35,484,047, as compared with $31,129,004 for 1936.

6% Gain In Motor Fuel Demand In November Over November, '36

NEW YORK, Feb. 7. — An increase of 8.51 per cent in gasoline consumption in the U. S. in the 11 months ended with November, over the corresponding period of 1936, is shown in tax reports filed by wholesalers and dealers in the various states under gasoline tax laws, according to the American Petroleum Institute.

The gain in daily average demand in this period was 8.83 per cent over the previous year, the variance in the per cent of change being due to the extra day in 1936.

During November, 1937, gasoline consumption increased 5.96 per cent over November, 1936, but it decreased 2.10 per cent under October, 1937. Three states indicated decreases in November, 1937 from the preceding November, these being Mississippi, Rhode Island and Tennessee. The decreases were 4.08 per cent, 2.58 and 5.50 per cent respectively.

In the 10 months of 1937 ended with October, motor fuel consumption in the U. S. had increased 9.12 per cent on a daily average as compared with the same ten months in 1936; in the nine months ended September, 9.94 per cent; and in the eight months ended August, 10.24 per cent.

In the 11-month period of 1937, increases ranged as high as 18.23 per cent in New Mexico, and 15 states showed increases of 10 per cent or over. Five of these 15 states were in the southeast, three in the middlewest, two along the Atlantic seaboard, two in the Rocky Mountain area, one in the East, one in Central Texas and one in the southwest.

GASOLINE CONSUMPTION IN U. S. FOR 11 MONTHS AND FOR NOVEMBER, 1937

(Figures in thousands of gallons from tax reports compiled by American Petroleum Institute)

	Month of			% Change 1937, over	11 Months Ended With		% Change 1937, over
	Oct., 1937	Nov., 1937	Nov., 1936	1936	Nov., 1937	Nov., 1936	1936
Alabama	19,835	18,951	18,078	+ 4.83	207,304	186,494	+11.16
Arizona	8,680	8,947	8,262	+ 8.29	94,386	86,504	+ 9.11
Arkansas	15,627	13,841	13,764	+ 5.59	153,763	140,416	+ 9.50
California	146,164	142,868	139,967	+ 2.07	1,610,751	1,513,467	+ 6.43
Colorado	19,059	17,681	16,777	+ 5.39	206,159	188,486	+ 9.38
Connecticut	28,083	25,971	24,322	+ 6.78	297,566	275,201	+ 8.13
Delaware	4,483	4,226	4,070	+ 3.83	50,479	46,423	+ 8.74
District of Columbia	11,637	11,401	10,854	+ 5.04	125,410	116,324	+ 7.81
Florida	24,974	27,390	25,235	+ 8.54	294,662	281,097	+ 4.82
Georgia	27,727	27,086	26,947	+ 0.51	295,117	275,632	+ 7.07
Idaho	9,509	7,959	7,672	+ 3.74	88,160	81,429	+ 8.27
Illinois	116,804	107,729	101,591	+ 6.04	1,200,129	1,095,086	+ 9.59
Indiana	52,343	52,139	48,392	+ 7.74	570,436	514,700	+10.83
Iowa	42,919	43,318	38,874	+11.43	463,861	424,739	+ 9.21
Kansas	37,462	33,779	32,703	+ 3.29	439,121	416,649	+ 5.39
Kentucky	21,426	20,672	19,307	+ 7.07	232,473	209,363	+11.04
Louisiana	21,191	20,711	18,793	+10.20	215,237	197,267	+ 9.11
Maine	13,514	10,772	10,616	+ 1.47	135,961	125,510	+ 8.33
Maryland	23,514	22,767	20,439	+11.39	248,385	224,806	+10.49
Massachusetts	61,416	56,222	54,239	+ 9.19	642,300	603,363	+ 6.45
Michigan	97,358	91,869	85,005	+ 8.07	1,030,398	910,911	+13.12
Minnesota	48,316	44,925	40,954	+ 9.70	474,750	445,553	+ 6.55
Mississippi	17,613	15,865	16,539	— 4.08	175,296	155,493	+12.73
Missouri	52,497	49,792	49,291	+ 1.07	541,923	519,581	+ 4.30
Montana	10,938	9,044	8,112	+11.49	107,379	102,200	+ 5.07
Nebraska	20,220	19,489	19,423	+ 0.34	212,761	212,467	+ 0.14
Nevada	3,383	2,972	2,779	+ 6.94	34,372	31,557	+ 8.92
New Hampshire	7,490	6,544	6,162	+ 6.20	79,953	75,331	+ 6.13
New Jersey	69,213	66,290	60,371	+ 9.80	754,805	682,642	+10.57
New Mexico	7,750	7,558	6,557	+15.27	81,798	69,185	+18.23
New York	158,835	145,535	140,295	+ 3.73	1,678,561	1,583,800	+ 5.98
North Carolina	34,989	34,637	31,409	+10.28	356,352	317,965	+12.07
North Dakota	11,055	10,384	8,797	+18.04	115,837	104,297	+11.06
Ohio	109,350	105,184	97,299	+ 8.10	1,178,760	1,071,049	+10.06
Oklahoma	33,597	30,189	30,046	+ 0.47	357,051	335,655	+ 6.37
Oregon	21,143	17,031	16,684	+ 2.08	210,771	199,720	+ 5.53
Pennsylvania	125,508	118,064	109,273	+ 8.04	1,306,032	1,174,805	+11.17
Rhode Island	10,871	9,596	9,850	— 2.58	113,106	107,945	+ 4.78
South Carolina	16,310	16,009	14,746	+ 8.56	172,386	149,358	+15.42
South Dakota	9,546	10,245	8,946	+14.52	106,263	105,500	+ 0.72
Tennessee	21,974	23,754	25,137	— 5.50	246,460	240,507	+ 2.47
Texas	105,114	102,058	93,573	+ 9.07	1,110,007	999,758	+11.03
Utah	7,966	7,507	6,686	+12.28	81,930	74,622	+ 9.79
Vermont	6,614	5,235	4,596	+13.90	61,170	55,865	+ 9.50
Virginia	29,681	29,098	26,178	+11.15	314,832	289,163	+ 8.88
Washington	29,906	26,106	24,767	+ 5.41	309,793	295,001	+ 5.01
West Viriginia	17,014	15,973	15,496	+ 3.08	181,781	166,458	+ 9.20
Wisconsin	47,522	47,220	44,809	+ 5.33	504,141	465,411	+ 8.32
Wyoming	5,752	5,045	4,698	+ 7.39	59,977	54,455	+10.14
Total	1,843,892	1,747,648	1,649,380	+ 5.96	19,530,305	17,999,210	+ 8.51
Daily Average	59,480	58,255	54,979	+ 5.96	58,474	53,729	+ 8.83
Change from previous year:							
Total change	.....	+98,268	.....		+1,531,095	.....	
Percentage change in Daily Average	.....	+5.96%	.....		+8.83%	.....	

Special Session To Take Up First Tidelands Bills

N. P. N. News Bureau

LOS ANGELES, Feb. 19. — Although details of the call for California legislators to meet in special session have not been announced, Governor Merriam has tentatively set March 7 as the date for this session to convene.

Number One in the lineup for discussion by California lawmakers at this time is oil legislation designed to "protect public interest in tideland oil deposits".

In fact, the governor has advised legislators that consideration of this tideland development problem must be carried through to a satisfactory solution, even if other subjects included in the call have to be dropped. He indicated the agenda would include six subjects for certain, and might include two others.

While the chief executive expressed the opinion that the session would not last more than three or four days, he also stressed the need for passage of tideland legislation regardless of the length of time required.

Failure of the two enactments passed by the 1937 California legislature for developing state claimed tidelands, to survive the attacks of opponents put the matter back about where it was a year ago. One of these laws, submitted by assemblyman John H. O'Donnell, fell an easy prey to referendum action and is now scheduled to be placed before voters at the next general election.

Tideland bill No. 2, backed by state senator Culbert L. Olson — reported to have an eye on the governor's chair — was passed as an emergency measure, which in the normal course of events is not subject to referendum.

Court Knocks Other Out

However, Feb. 14, the California supreme court held the Olson act could not be considered an urgency measure, because it carried provisions which would modify duties of a state official — director of finance — and was therefore subject to referendum.

The decision directed the state to discontinue all proceedings under the act until after the referendum election. At the same time it was noted that a daily loss to the state of a considerable amount of revenue might result, but added that duty of the court begins and ends with interpretation of the language used in the constitution.

Feb. 18, preliminary hearings were started on four injunction suits brought by the state attorney general's office against operators of some 30 wells located in the Wilmington-Long Beach harbor area on lands claimed by the state as tidelands or former submerged lands.

A preliminary injunction was asked by the state to prevent removal of oil and to prohibit further drilling until the matter of ownership is settled.

A. L. Weil, president of General Petroleum Corp., which has drilling rights on the disputed lands and is a co-defendant in one of the suits, appeared as legal counsel for his company. He argued on behalf of claims by the cities of Los Angeles and Long Beach and private interests that mineral rights in these tidelands were not retained by the state when the lands were deeded to the cities for harbor improvements.

In any event, he said the state had no claim to the tidelands, because under the treaty with Mexico whereby California became a part of the U. S. these tidelands were given to the federal government. And if the present holders of the lands in question are not qualified owners of the mineral rights, the federal government would be the only possible contender, he said.

The attorney for Ford Motor Co. and Union Pacific Railroad, co-defendants in actions brought by the state, introduced the claim that certain lands in this area were part of an original Spanish Grant and that title to these lands passed directly to private interests. A certified copy of the grant was submitted in evidence.

This phase of the argument was terminated by adjournment but is expected to be fully developed when the hearing reconvenes Feb. 23. All argument on demurrers to the plea for preliminary injunctions will probably be finished within the week.

Curtailment efforts by operators of wells bottomed or drilling for production in the prolific Terminal zone of the new Long Beach harbor extension of the Wilmington field, took a turn for the better late in the week.

After much discussion, it was recommended that output from wells producing from the Terminal sands would be cut back to about 2500 barrels daily for each well by March 1. There are seven wells now producing from this deep sand and indications are 10 will be on production by the end of the month.

With most completions capable of an output in excess of 5000 barrels a day, the Long Beach extension could be yielding 50,000 barrels daily within the next 15 days. However, under the proposed curtailment, this will be reduced to 25,000 barrels daily.

Budget Estimate Cut For 'Trust Busters'

N. P. N. News Bureau

WASHINGTON, Feb. 21.—Commenting that "the policy of the government in regard to anti-trust matters is not as yet clearly defined," the House Appropriations Committee last week reported an appropriation bill which sliced $77,000 off the Budget Bureau's estimate of funds needed for activities of the Justice Department's anti-trust division during the coming fiscal year.

The bill as reported carried an appropriation of $580,060 for the anti-trust division, an increase of $132,000 over the current year's appropriation, the committee said. The Budget Bureau had recommended an increase of $209,000, and, before the budget estimates were prepared, Attorney General Homer Cummings said he ought to have $1,000,000 additional for the division.

"Inasmuch as the policy of the government in regard to anti-trust matters is not as yet clearly defined, it is believed by the committee that this increase (132,000) will be adequate," the committee report said.

Tornado Snuffs Lives In Town of Rodessa

N. P. N. News Bureau

TULSA, Feb. 19.—A tornado which swept through the edge of Rodessa, oil boom town in the northwestern corner of Louisiana, the night of Feb. 17 killed between 20 and 30 persons and injured as many more. Warehouses of several supply companies on "Supply Row" were demolished. The majority of those killed and injured were dwellers in small frame houses and shacks.

Two derricks were demolished, causing the wells to flow unchecked for several hours. The escaping gas, hanging low over the scene, hampered rescue work as oil field workers had to use care not to cause any sparks while removing debris.

Changes Sought By Cummings in Tidelands Bill

N. P. N. News Bureau

WASHINGTON, Feb. 21.—"In order to prevent the possibility of claims being asserted against the government" when, as and if it takes over the tide-covered oil lands off the U. S. coasts, Attorney General Homer Cummings has written Rep. Hatton Sumners, chairman of the House judiciary committee, recommending certain changes in the Nye tidelands resolution, on which hearings are to begin Feb. 23, it was learned today.

Nye's resolution would authorize the attorney general to assert federal title to such tide-covered oil lands, and to eject all "persons now or hereafter trespassing upon or otherwise occupying the said submerged lands or removing the petroleum deposits therefrom."

In his letter to Sumners, Cummings points out:

"In order to prevent the possibility of claims for compensation being asserted against the government, it is essential that the resolution should be so phrased as not to be susceptible of being construed a legislative taking of property not belonging to the government, or as a direction to the attorney general to bring legal proceedings to acquire title. I therefore suggest that the resolution be strictly confined to authority and direction to secure a judicial determination as to whether or not title to the lands in question is in the United States.

"In order to avoid any possible ambiguity on this subject, I recommend that the fourth recital contained in the preamble of the resolution be stricken therefrom, and that the following proviso be added at the end of the resolution:

" 'Provided, that nothing contained in this resolution shall be construed as authorizing the acquisition by the United States of any lands or property by eminent domain or otherwise.' "

The paragraph which Cummings would strike from the resolution reads:

"Whereas all such submerged lands below said low-water mark and within the three-mile limit lying along the coast of the United States are asserted to be the property of the United States . . ."

In short, the attorney general is in favor of the U. S. getting jurisdiction over the tidelands, instead of the states, but does not want anything to come up that might force the federal government to pay the persons it may oust.

3 Companies To Drill Joint Oil Test In Alaska

N. P. N. News Bureau

LOS ANGELES, Feb. 19. — Details were announced last week for a joint test for commercial oil production in the Alaskan territory by Standard Oil Co. of California, Tidewater Associated Oil Co. and Union Oil Co., each to have an equal undivided one-third interest.

Operating rights have been acquired on approximately 135,000 acres of U. S. Government lands in the Kanatak district on the south side and near the easterly end of the Alaskan Peninsula.

Various areas in this block have been divided into five major units and agreements providing for the prospecting and development of each have been entered into between the operating companies and the government permittees. The agreements have received approval of the Secretary of the Interior, and Standard of California has been designated as "operator" to drill the first test well.

Initial exploration will be on a site selected as a result of geological exploration conducted jointly by representatives from each of the interested companies during the summer of 1937, and as a result of earlier independent explorations by Standard and Associated (Tidewater Associated) in 1921.

The first well in the Kanatak district, will be approximately eight miles inland from the coast and west across Shelikoff Strait from the settlement of Karluk. According to present plans, actual drilling will start on or about May 15 of this year.

Will Build Camp

Because there are no settlements, roads, or harbor facilities in the immediate vicinity of the area selected for development, it will be necessary to construct a beach camp for the accommodation of crews engaged in building roads. All equipment and supplies will be unloaded into lighters for delivery to the beach camp, from where it will later be transferred to a permanent camp at the drilling site.

The "Northwind", a 4000-ton steamer, has been chartered to transport supplies, complete road building equipment, drilling equipment, and materials for housing and storage facilities from Los Angeles to the Alaskan Peninsula.

Complete equipment for the transmission and receiving of wireless messages through the usual routes of communication will be installed at the beach camp and telegraphic contact will be maintained at all times with the progress of the expedition.

In 1921, Standard and Associated each drilled on the Pearl Creek structure, approximately 25 miles northwest of the areas now to be tested. It is pointed out that these earlier operations provided some data for the location of the new test, which is intended to determine oil possibilities of the Jurassic formations in the southeasterly end of the Alaskan Peninsula.

The area to be tested by the three companies is about 135 miles, as the crow flies, from an interesting test by Iniskin Drilling Co.—backed by California interests—on Cook Inlet. This test is north and east of the Standard-Associated-Union exploration, and is about 15 miles south and west of Mt. Iliamna.

Drilling has been shut down for the winter on the Iniskin well, but operations will be resumed about June 1. Bottomed at 5070 feet, the test is reported to have picked up gas showings at 4800 feet which became increasingly strong at the greater depths.

Pre-drilling estimates placed probable oil in the Jurassic formation at between 5000 and 7000 feet on this test, so that commercial possibilities of the well may be shown by midsummer.

DAILY AVERAGE PRODUCTION IMPORTANT DISTRICTS

American Petroleum Inst. Figures

	Week Ended Feb. 19 Barrels	Feb. 12 Barrels
Oklahoma City	117,200	100,000
Total Okla....	532,300	511.100
East Texas....	425,050	424,650
Total Texas...	1,254,400	1,235,600
Rodessa	43,000	44,450
Total La.....	253,800	255,350
California	740,400	737,000
E. of Rockies.	2,628,850	2,587,500
Total U. S....	3,369,250	3,324,500
Crude imports	73,000	98,850
Tot. new sup'ly	3,442,250	3,423,350

Eastern Safety Meet

NEW YORK, Feb. 21. — The operation and maintenance of automatic oil burners will be discussed at the ninth annual convention of Greater New York Safety Council, April 19, 20 and 21 at Hotel Astor. There will be 35 sessions on all phases of safety with 162 speakers and 8000 delegates are expected. On the program is a sectional meeting on petroleum.

California Oil Stocks Increasing Despite Heavy Tanker Shipments

N. P. N. News Bureau

LOS ANGELES, Feb. 19. — In spite of exceptionally heavy movement of California crude oil and products to offshore points — particularly Pacific foreign, petroleum stocks in the state showed substantial additions during the six weeks Jan. 2 to Feb. 12.

Indications are that refinable crude oil stocks increased 1,182,000 barrels, or 28,143 barrels a day; gasoline 968,000 barrels, or 23,048 barrels per day; and fuel oils 3,721,000 barrels, or 88,595 barrels per day. This latter was made up of 99,000 barrels of gas and diesel oils and 3,622,000 of residual fuel.

Tanker shipments from California ports during January were at the rate of 187,644 barrels a day and continued to act as a check valve on the rising crude oil production in this state.

Estimated tanker movement for January is shown below.

Tanker Shipments

The average of 187,644 barrels a day estimated for January is 39,604 barrels higher than the daily average for December. Indications now are that offshore shipments for February will be substantially under January.

Product	Pacific Foreign	Atlantic Foreign	Intercoastal	Total
Gasoline	549,611	300,577	254,507	1,104,695
Crude	3,099,977	56,088	.....	3,156,065
Fuel	1,078,289	.....	178,662	1,256,951
All Others	45,311	109,500	144,450	299,261
Total	4,773,188	466,165	577,619	5,816,972
Bbls. a Day	153.973	15.038	18,633	187,644
Per Cent	82.06	8.01	9.93	.....

Agreement Nears On Pollution Bill

N. P. N. News Bureau

WASHINGTON, Feb. 21.— "Substantial agreement" on a pollution control bill has been reached by Senate and House conferees appointed during the last regular session of Congress to iron out differences in bills passed by the two bodies last summer, it was learned today.

Last session the House passed the Vinson pollution measure, which provided for federal co-operation with states and industries in studying pollution problems, and for federal grants-in-aid to assist public and private bodies in abating water pollution.

But when this bill went to the Senate, that body inserted in it many of the provisions of the strict Lonergan measure, providing for federal "standards of purity" for all streams in the country and for court action against persons who were found guilty of polluting any stream beyond the standard fixed.

Then the pollution measure was sent to conference, when the House refused to concur in the Senate amendments.

Lonergan Bill Softened

Under the agreement said to have been reached by the conferees, some of the Lonergan provisions have been left in, but "softened" to a certain extent.

For instance, no legal action of any kind may be started against public or private corporations for at least five years after passage of the bill, and then only after the Public Health Serviee certifies that (1) the state in which the pollution occurs is either unable or has refused to correct the situation; (2) there is a method known and available for abatement of the particular type of pollution, and (3) that federal co-operation (grants-in-aid) is available but has not been taken advantage of.

The bill to be reported out by the conferees is expected to provide also that the federal standards of purity will not be set up until after the federal government has consulted with the state health authorities in which affected streams are located.

The grants-in-aid and "study" provisions of the Vinson bill will be left intact, it is said.

Although no formal meeting of the conferees has yet been held, it is probable that they will meet within the next few weeks to draft the compromise measure on which they are said to be in agreement.

Petroleum, a hydrocarbon, now is believed to constitute a field as prolific and as productive of necessary chemical products as coal tar.

Further Cuts In Allowables Seen As Oil Is Stored

TULSA, Feb. 19

Crude oil purchasers are reluctant to discuss the amount of oil they have in storage, chiefly because wrong interpretations are placed upon the figures at times. Sometimes what appears to be a healthy draft on stocks in Oklahoma, Kansas or elsewhere is merely a transfer from field to refinery storage and represents no overall reduction in a company's storage.

On one point the purchasers agree today, however. Practically without exception, they are putting oil into storage and the state regulatory commissions are being implored to reduce allowable production some more.

It is now about that time of month when the commissions make up their minds about next month's allowable production. In this sizable chore they are now having more than the usual amount of assistance.

Purchasers are ready at all times to give their ideas and, as they are the ones who buy and pay for the oil, their ideas are being sought by most of the regulatory commissions which have authority over oil and gas production.

The Railroad Commission of Texas held its monthly statewide hearing in Austin, Jan. 18. As has been the custom for many months, the commission asked that purchasers submit in advance their notion of the amount of oil they would require. These "nominations" as usual were away above the actual demand, totalling 1,564,041 barrels daily through March. That was 14,332 barrels less than the comparable figure for February.

Texas Whittling Down

As usual, that wasn't much of a guide and the commission indicated its intention to keep on whittling production down to fit the demand. There had been some talk by Col. Ernest O. Thompson, member of the commission, that a five-day production week might be needed, but he asserted at the hearing that he had decided that the Sunday shutdown plan would be adequate.

It was estimated by the American Petroleum Institute, for the week ended Feb. 12, that the state's production was averaging 1,235,600 barrels daily. That was about 200,000 barrels daily less than the full allowable, without considering the Sunday shutdown but it isn't yet a one-seventh reduction. It is such a heavy reduction, however, that Texas producers generally feel that they have taken care of their end of the job.

The current production figure is far below the U. S. Bureau of Mines forecast of March demand, 1,344,900 barrels daily.

This is the season, however, for disagreeing with the bureau. Last summer was another period when the state commissions disagreed with the bureau, but in the opposite direction to the course now pursued. Then, the bureau figures were considered too conservative; now they are looked upon as too high.

Price Called High

There was a little price talk at the Austin hearing. C. R. Starnes, head of the Texas Oil Products Co., whose East Texas refinery is shut down, asserted that the price of East Texas crude is about 8 cents a barrel too high. Cheaper oil is being refined in the East Texas field at this time, coming from Louisiana. John Schroder, Danciger Oil & Refining Co., declared that some other Texas oils were too low in comparison with East Texas; that it was not the latter that was too high.

Moving on to other states where purchasers believe production is too high, Oklahoma and Kansas both heard the story of today's excessive supply. The Corporation Commission of Kansas held a closed meeting the night of Feb. 16, in Wichita, with purchasers only. For several months the buyers have been telling the commission at the monthly hearings about their requirements and the commission has not paid close attention. The result then was pipeline proration — the purchaser setting his own figure based on the state's allowable but invariably below the latter.

Nothing came of the Feb. 16 meeting, no emergency order was issued. Stanolind Crude Oil Purchasing Co. had waited to see what the commission would do. So this company, which for the past three months has been taking 85 per cent of the allowable production of wells in Ellis county, western Kansas, to which its affiliated pipeline is connected, notified producers that it would apply the same percentage to the rest of the state where it buys. Exempt from such restriction are the "marginal wells," which by statute are defined to be those not capable of producing more than 15 barrels daily.

The pipeline proration condition in Kansas is almost complete. Nearly all purchasers are taking less than the Corporation Commission permits to be produced.

Oklahoma's Corporation Commission held its monthly hearing on market demand Feb. 18, but after ratifying the emergency order of Feb. 9 which cut production 35,000 barrels daily to flat 500,000, the commission recessed the hearing to Feb. 28. Conservation Officer W. J. Armstrong, who had earlier discussed the outlook with purchasers and producers, seemed ready to recommend that the commission trim off another 50,000 barrels, making March allowable 450,000, but he decided he wanted to take a further look. He was convinced, he said, of the seriousness of the situation.

No purchaser announced it was satisfied with present allowable and Carter Oil Co., supplier of several eastern refiners, said it had been thrown farther out of balance by a reduction of 9000 barrels daily through March in the amount of crude taken by one of its customers, who said it was getting more of its requirements from Michigan and Illinois.

New Mexico set its daily figure for the period Feb. 16-28, inclusive for all fields at 101,100 barrels daily, the same as in the first half of the month. The feeling of some buyers is that this will have to come down. The Bureau of Mines has forecast demand of 105,100 barrels daily over March for this state.

More Funds Provided For Export Data

N. P. N. News Bureau

WASHINGTON, Feb. 21. — The House Appropriations Committee wrote into the "four department" appropriations bill which it reported last week an increase of $10,000 for the "export industries" activities of the Bureau of Foreign and Domestic Commerce, with the comment:

"It is thought that approximately $6000 of this sum can be used to decided advantage in strengthening the statistical service rendered the petroleum industry by the petroleum division."

For some time the petroleum and coal section at the commerce bureau has been comprised of two people—Paul L. Hopper, its chief, and one secretary, who have been responsible for the issuance of all import-export figures and other data from that section. Under the new appropriation, if passed by both houses and signed by the President, it is expected the statistical services of the section will be expanded.

Canadian Oil Output Doubles '36 Production

OTTAWA, Feb. 19.—How exploratory activity begun in the spring of 1937 has doubled the Canadian production of crude oil, largely through discoveries in Turner Valley, Alberta, was revealed today in an analysis of a report by the Dominion Bureau of Statistics, Department of Trade and Commerce.

During the year 1937 Canada's production totaled 2,995,025 barrels or 98.6 per cent above the total for the preceding year. Of this total, the Turner Valley field accounted for practically all—2,767,221 barrels. Turner Valley's production for the year 1936 was only 1,287,238.

Alberta's output in December, 1937, advanced to 394,893 barrels from the November total of 326,677.

Just as Canada's December production showed an increase over the proceeding month, so each month during the year 1937 was larger than its previous month. These figures are as follows:

Production of Petroleum in Canada

	1937 (a) (Barrels)	1936 (Barrels)
January	141,078	120,261
February	153,906	106,973
March	176,657	116,611
April	188,014	109,104
May	192,845	114,297
June	209,181	114,141
July	241,737	142,404
August	288,934	142,572
September	298,753	135,684
October	342,452	137,004
November	341,517	129,152
December	408,580	139,728
Total (b)	2,995,025	1,507,931

(a) Subject to revision.
(b) Includes output from Northwest Territories.

Total consumption of gasoline in Canada increased in the first 11 months of 1937 15.65 per cent above the corresponding period of 1936.

Imports from the United States of gasoline in 1937 totaled 53,972,140 imperial gallons (1.2 U. S. gallons) Peru, with 17,743,112 gallons, was the only other country shipping sizeable quantities of gasoline to Canada.

Virginia Gasoline Cut

NEW YORK, Feb. 22.—Effective Feb. 23, the Standard Oil Co. of New Jersey will reduce its consumer tank car and dealer tank wagon prices of motor fuels 0.5 cent through Virginia, the company announced today.

In announcing this reduction, the company said that it was "due to price cutting and the loaning of delivery equipment."

Newspapers See Dilemma in Madison Oil Case

Suggest Revision of Anti-Trust Law As Remedy

N. P. N. News Bureau

CLEVELAND, Feb. 21. — The editor's mail has brought editorial comments on the Madison case from readers of NATIONAL PETROLEUM NEWS from the press in points as widely varied as Portland, Ore., Fargo, N. D., and London, England.

A number of these editorials carried out the theme of similar editorials printed previously in N. P. N.; namely, that the oil companies had been "double-crossed" by the administration.

Representing a contrary view, *The Oil Can*, of the Illinois Petroleum Marketers Assn., declared that the guilty verdict at Madison was "not altogether a surprise to those who were familiar with what was going on in 1935 and early 1936, under the guise of stabilization."

In a colorful editorial, *The Oregonian*, published at Portland, found humor in the point that a jury of farmers and small businessmen were called upon to pass on highly technical questions of petroleum operation and government policy.

The august *Christian Science Monitor* suggested that a revision of anti-trust laws to clarify the government's stand on what constitutes monopoly would be welcomed by businessmen and courts alike.

Excerpts from some editorials follow:

WHEN IS PRICE-FIXING A CRIME?

THE OREGONIAN (Feb. 7), Portland, Ore.

. . . all around us today are not prices fixed, even of the loaves of bread and bottles of milk we buy for our children? Fixed by and with the orders and protection of government?

Is monopoly benign or malign? Is price fixing good or evil? Is curtailment of production wise or foolish? Is restraint of trade a commendable enterprise or wicked conspiracy? Has the new deal any definite policies about anything (other than maintaining itself in office) or is it just dizzy? . . .

Hundreds of thousands of dollars of public money, to say nothing of that of the defendants, will be spent upon the Wisconsin case. The trial went on for many weeks. Masses of evidence were educed and laid before a jury of twelve small businessmen, mechanics and farmers, to whom the great bulk of it might just as well have been in Greek or Sanskrit. After less than twelve hours' deliberation (they had to stay out a while, for appearance's sake) they brought in a verdict of guilty.

* * *

AMERICAN OIL COMPANIES LOSE

THE PETROLEUM TIMES, (London), Jan. 29

End of the first stage in the famous United States so-called anti-trust monopoly action at Madison (Wisconsin) has come with the jury returning a verdict of guilty against 16 major oil companies and 30 individuals for "conspiring to raise and fix gasoline prices in violation of the anti-trust laws in the Middle West in 1935 and 1936." In other words, they have been deemed criminals because they acted in direct accord with Washington's desires, and, in so doing, apparently violated the valid statutory law. Needless to say, the defense immediately asked for an arrest of judgment and a new trial. The position now reached would be farcical were it not that its implications are so serious to American industry and commerce. Doubtless this decision and its effects will be reviewed shortly by our New York correspondent.

* * *

THE OIL CAN

(Organ of Illinois Petroleum Marketers Assn. Feb., 1938)

Now that the trial is over, and the law has spoken, there is little to be said except that those companies and individuals who have been convicted should now have some conception of their responsibility to Independent jobbers whom they used as their tool to further their own greed for greater power and profits, while at the same time making them believe that they were endeavoring to do all that they could for them in allowing them a living margin. . . .

* * *

DAMNED IF YOU DON'T AND DAMNED IF YOU DO

THE INLAND OIL INDEX Casper, Wyo., Feb. 4

The Madison verdict has been returned — guilty. This despite the Miller-Tydings law in effect legalizing price-fixing. This despite the NRA which promoted and condoned price-fixing as a means, economically sound or unsound, to bolster prices and falling wages. This despite the Ickes letter requesting and authorizing C. E. Arnott, as Chairman of the marketing committee, to stabilize the prices of gasoline. . .

President Roosevelt has repeatedly asked for the co-operation of business, and blamed any recession to lack of co-operation by business. Secretary Ickes closed his letter to Arnott with: "I trust I can count on your co-operation." Arnott and the industry gave their full co-operation. One ponders — What price co-operation? "You are damned if you don't, and you are damned if you do."

* * *

THE FARGO FORUM Fargo, N. D., Feb. 3.

. . . At a time when the oil companies are being found guilty in a court for following the advice of Government in respect to raising prices, the Guffey coal measure, designated as the little NRA, still stands. . . The Administration forced it to be passed, and there is nothing to indicate any change in Administration viewpoint.

So where? So what?

* * *

When Is a Trust?

CHRISTIAN SCIENCE MONITOR (Jan. 24)

Conviction of 16 of the largest oil companies in the United States and 30 of their officials on charges of conspiracy to fix gasoline prices does much to dispel the assumption that the federal anti-trust laws cannot be enforced. Attorney General Homer Cummings said in his recent annual report, "Obviously the statute in its present form is not adequate for the purpose of dealing with the many ramifications of the problem", and recommended a comprehensive study to provide needed legislation.

His recommendation can still be endorsed, for in the light of the present (Madison) case business men will know less than ever what they can do and what they must not do in conformity with the vague enjoinder against any "contract, combination or conspiracy in restraint of trade." For the defense offered by the oil company executives in this instance was the very plausible one that they had been doing merely what the Government, under NRA and the Petroleum Administration, had encouraged them, even asked them to do.

That is, they were supporting the market for gasoline by making through a pool moderate purchases of that commodity from small and distressed producers. It is charged that this, in turn, raised the price at which they were able to sell a much larger volume of their own production and narrowed the margin of independent distributors. However this may be, the crime of the oil companies apparently consists of the fact that they continued for some months after the expiration of NRA the identical practices which had been approved and fostered under NRA, but which were considered no crime so long as the Government had a hand in the proceedings.

This becomes important in view of the intention expressed by President Roosevelt to send to Congress soon a special message recommending new legislation for the control of monopoly. . . .

* * *

ANTI-TRUST PROSECUTIONS

Washington POST, Jan. 24

"The conviction of 16 oil companies and 30 executives of conspiracy to increase and fix gasoline prices seems to raise more questions than it settles. It affords welcome evidence that the anti-trust division has been doing some effective work coincident with Robert H. Jackson's public attacks upon monopoly. But it does not necessarily indicate that policy the Administration will follow in dealing with the concentration of industrial control.

"In this case the officials and companies were accused of controlling gasoline prices through purchases from small independent refiners. Their defense, ironically enough, seems to have rested chiefly on the claim that this policy was inaugurated with the acquiescence of the NRA. A practice once seemingly approved by the Administration now results in convictions that will probably be followed by fines or jail sentences. And the latter development comes at a time when the President is again talking about Government-business planning to control production.

Barge-Truck Oil Movement Favored For Northwest In Report To ICC

N. P. N. News Bureau

WASHINGTON, Feb. 21. — To promote the co-ordination of water and motor transportation of petroleum products, in the Pacific Northwest, a joint board set up under the Motor Carrier Act has recommended tc the Interstate Commerce that it grant three petroleum truckers authority to extend their operations.

The applicants, Arrow Transportation Co. of Delaware, Richmond Highlands, Wash.; Asbury Transportation Co. of Oregon, Inc., Los Angeles, and West Coast Transport Co., Seattle, have all been engaged in hauling petroleum products from Portland, Oreg., inland, and applied for authority to haul also out of The Dalles, Oreg., principally because of the institution of two new barge line operations on the Columbia River.

It was pointed out that if appropriate certificates are granted, the truckers will issue a tariff with the Inland Navigation Co. publishing joint water-motor rates.

Commenting on the proposed operations, the joint board said:

"The water carrier holds a certificate from this commission, issued after a full public hearing. It desires to serve all shippers. Its interest, of course, is to have as many common carrier outlets as possible at its terminal.

"Its interest will, therefore, be advanced, if, first of all, it is able to assure any prospective petroleum shipper of a connection beyond The Dalles via the motor carrier with whom that shipper has done business in the past.

"In the second place, competition between the various motor carriers will promote good service. The converse would likewise be true if there should develop substantial competition among the water carriers on the Columbia River."

The board then cites acts of Congress directing the commission to encourage development of co-ordination between carriers of various types, and adds:

"In many cases the commission has considered the desirability of effecting co-ordination between railroads and motor carriers and between railroads and water carriers. This application illustrates an excellent example of co-ordination between water carriers and motor carriers."

Hadlick to Appear At Export Hearing

N. P. N. News Bureau

WASHINGTON, Feb. 21. — Sen. Elbert D. Thomas, Utah, chairman of the Senate Military Affairs subcommittee studying export of materials "essential to the national defense," has written Paul E. Hadlick, secretary of National Oil Marketers Assn., that his committee expects to go into petroleum exports shortly after it resumes hearings March 8.

Hadlick had previously written Sen. Thomas suggesting a study of petroleum exports, and he was told earlier this month (N. P. N., Feb. 9, p. 18) that the committee hoped to go into the subject.

Thomas told Hadlick he would be given an opportunity to appear at the hearings, which he said wanted to get all the information possible "relative to strategic and critical raw materials." Hadlick favors an embargo of oil exports as a step toward conservation, as well as repeal of the import tax on oil, and said he will testify before the committee.

Valuations for Three Pipelines Fixed

N. P. N. News Bureau

WASHINGTON, Feb. 21.— Tentative valuation reports on three more of the 55 pipelines whose properties are to be valuated as common carriers under Interstate Commerce Commission orders of late 1934 were made public today, bringing to about a dozen the reports issued thus far under the orders.

Today's reports set the tentative value of carrier-owned-and-used properties of Atlas Pipe Line Co., Inc., located in Texas and Louisiana, at $1,400,000; of Spartan Refining Co., Inc., located in Arkansas and Louisiana, at $750,000, and of International Pipe Line Co., Montana, at $325,000.

Under ICC regulations, carriers are given 30 days in which to protest the tentative valuations, after which period they become final if not contested. It is expected that valuations being set on pipeline properties under these orders will be used by the commission in its determination of the pipeline rate case, hearings on which are expected to be resumed in two or three months.

Contents

NEWS

Protests From Consumers Flooding Congress On Fuel Oil Tax Program 17
Bill in Congress Seeks Repeal of Connally Statute 17
Credit Extension to Farmers Discussed By Kansas Jobbers 17
'Reduce Taxes' is Battle Cry of Illinois Jobbers' Meeting 17
O. B. I. Condemns Tax On Fuel Oil As 'Uneconomic' 18
Tax on Fuel Oil to Drive Bunker Business Abroad 19
Oil Jobber Enlists Customers to Write Congressmen in Attack on Fuel Tax 19
N. Y. Legislature Gets Four Bills Regulating Oil 19
Bulkley Reported 'Optimistic' Over Superhighway Prospects... 20
Bureau of Mines Forecasts Lower Production in March 21
Whiting Replies to May Telegram 21
Editorials 22
"Heavy Water" Submerging E. Texas Oil Bothers Botts 23
Oil's Mechanical Problems Topics at ASME Meeting 23
Allred to Fight Tidelands Claim 23
Wage and Hour Law Called Unfair in Service Station Operations 25
Ideas to Boost Merchandise Sales Discussed Among Jobbers 25
Adopts Militant Program on Taxes 25
He Gave Away a Glass Tumbler, Now on Trial in Criminal Court 26
Charge Oil Firms With Price Plot 26
Sun Co. Income Increases; Taxes Beat Its Payroll 27
6% Gain in Motor Fuel Demand in November, Over November '36... 27
Special Session to Take Up First Tidelands Bills 28
Changes Sought By Cummings in Tidelands Bill 28
3 Companies to Drill Joint Oil Test in Alaska 29
California Oil Stocks Increasing Despite Heavy Tanker Shipments 21
Agreement Nears on Pollution Bill 29
Further Cuts in Allowables Seen As Oil Is Stored 30
Canadian Oil Output Doubles '36 Production 30
Newspapers See Dilemma in Madison Oil Case 31
Barge-Truck Oil Movement Favored for Northwest in Report to ICC..... 32

MERCHANDISING

Fuel Oil is Economic Use of Petroleum..... 33
Consumer Demand Coming Factor in Proration Formula 36
Automotive Notes and Comments 41
Selling Furniture Through Service Stations 42
The Case Against a Fuel Oil Tax 57

MARKETS

Mid-Continent 61
Mid-Western 61
Eastern 61
Coastal 61
Pennsylvania 61
Wax 64
California 64
Fuel Oil 64
Refinery Tank Car Markets 62, 65
Tank Wagon Markets 66, 67, 68
Seaboard Markets 69
Crude Oil Markets...70, 71

DEPARTMENTS

New Patents 52
Trademarks 53
New Equipment and the Manufacturers 54

Chemicals and Catalysts

By ARCH L. FOSTER, Technical Editor

Acid in Oil Production

One of the newer ways to increase the production of crude from certain formation types is the treatment of wells with several thousand gallons of hydrochloric acid. HCl attacks limestone readily, and one result of this reaction is the opening up of the limestone formation to permit easier egress of the oil.

The net result of the rapid adoption of this treating method for limestone or similar formations is a huge increase in the demand for commercial hydrochloric acid. When three to five thousand gallons of HCl, of 30% strength or otherwise, may be used per well, the quantity of acid used in Kansas, Oklahoma, Texas and Louisiana can be enormous.

Southern Acid and Sulphur Co. of Shreveport is building facilities for producing 15 tons, or about 4000 gallons of acid per day, with arrangements for doubling the capacity when and if demand requires it. Consolidated Chemical Co. of Ft. Worth, Texas will also soon produce 15 tons per day with expansion of plant capacity easily affected if desired.

Ozark Chemical Co. of Tulsa is building capacity for 60 tons of acid, or about 16,000 gallons of acid per day. Reports state that all these plants will be operating by April. Along with the acid production salt cake is made, which is largely used in the southern paper industry, providing an outlet for this by-product which simplifies the problem for the acid manufacturers.

Thus the oil industry becomes a large customer of the chemical industry. One result of acid treating, however, is the inclusion of greater amounts of salts in the crude produced from treated wells, refining chemists say. In which case the chemists and the engineers provide other means for removal of the salt.

* * *

Purify Gases with Catalysts

Catalysts prepared from cobalt and nickel compounds are being studied in England for the removal of sulfur and nitrogenous impurities from commercial gas, especially manufactured gas. These catalysts are poisoned by the presence of oxygen at 212° F. but the oxygen is converted to water at 302° F. and the poisoning does not occur. Nickel hydroxide is formed on porous china by treatment of nickel chloride-impregnated china with an excess of alkali.

It is reported that the hydroxide is converted to nickel sulfide, which is the active catalyst which removes the sulfur from the gas. The treated gas contains no hydrogen sulfide, about 1 gram of carbon disulfide per 100 cu. ft., and four grams of total sulfur, most of which is thiophene and carbon oxysulfide, COS.

* * *

Good and Bad of Fischer-Tropsch Process

The greatest drawback of the Fischer-Tropsch process, for making motor fuel and other hydrocarbons from carbon monoxide and hydrogen by catalysis is the fact that the reaction must be carried out at atmospheric pressures, Dr. H. C. Shatwell, British chemical engineer, says. This necessitates large size equipment and correspondingly high installation costs per unit of output, he states.

Also the motor fuel portion of the product is low in octane number, showing 57 octane number for a 302° F. endpoint gasoline, and only 47 octane number for the 356° F. endpoint material. The diesel oil fractions produced in the reaction shows a *cetene* number of 100, report says, and can be used profitably as a blending agent to improve inferior diesel oils, such as those from coal tar, cracked oil, etc.

Engineers believe that the entire synthetic product can be cracked immediately it is produced, and then be transformed by polymerization methods to high octane number motor fuels, to compete with petroleum products in present-day engines.

Refining Technology

Contents

Patent Literature in Refining Technology . . . by J. H. Byers . . . Part 2 . . . . . R-67

This article presents the patents covering the straight synthesis of lubricating oil products by means of heat, pressure, catalysts, etc., from petroleum, coal tar, and numerous other raw materials.

"State of the Art" as Seen in the World's Current Technical Literature R-75

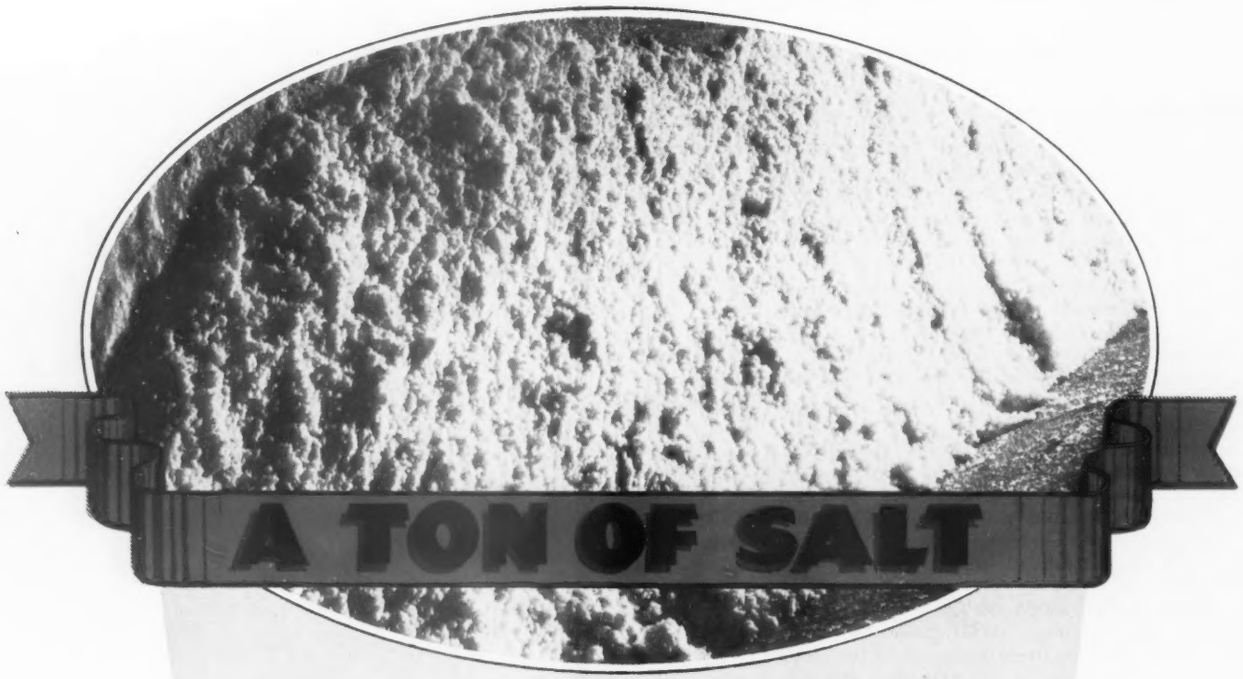
Classifying Asphalts by Means of Penetration Index . . . by J. Ph. Pfeiffer and P. M. Van Doormal R-78

A system for classifying asphalts on the basis of the inter-relationship between penetration values and softening point by the Ring-and-Ball method, which the authors believe gives a better basis for estimate of relative properties suited to different uses.

Activities of Equipment Manufacturers R-87

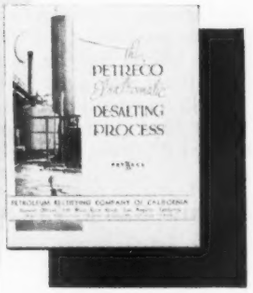
Patent Literature of Today R-88

Advertisers' Index . . . . . 72 and R-87



It is interesting to note that a ton of salt is taken into a refinery system when the stills are charged with 7500 barrels of crude oil containing approximately 0.5% of an average oil field brine having a specific gravity of 1.10. This in turn results in expensive shut-down periods due to coke deposits, salt deposition and scaling in fractionating and condensing equipment, corrosion, or harmful effects on refined and residual products. These, incidentally, are only a few of the many reasons for the widespread use and rapidly growing demand for the Petreco Electromatic De-Salting Process. Detailed operating and performance data covering recent installations will be supplied to refinery executives on request.

INCREASE ON-STREAM TIME WITH A PETRECO DE-SALTER



PETROLEUM RECTIFYING COMPANY
OF CALIFORNIA

General Offices: 530 West Sixth Street, Los Angeles, California
Branch Office: Houston, Texas. Branches and Service Men in Principal Oil Fields

PETRECO

Electromatic DE-SALTING PROCESS

Patent Literature

In Refining Technology

VIII. Straight Synthetic Lubricants

By J. H. BYERS

Part 2

(Continued from February 9, 1938 Issue)

HYDROCARBON oils of lubricating quality can be prepared from lower hydrocarbons, especially olefins, by the action of heat, pressure, electricity and radiant energy. Ellis, Pat. No. 1,089,359, treats petroleum oil with ultra violet light which has a special action on the bodies producing fluoresence.

Reaction of the materials is very often promoted by the use of catalysts, the most frequently used, being aluminum chloride. The speed and yield depend in general, on the amount of catalyst. Among the numerous catalysts which are mentioned are silicon tetrachloride, titanium tetrachloride, stannic chloride, phosphorus pentachloride, bismuth trichloride, ferric chloride, boron fluoride, activated clay, phosphoric acid, and sulfuric acid.

The action of aluminum chloride is two-fold. A splitting action takes place breaking the molecules into smaller ones, and also the broken molecules are synthesized into aggregates even heavier than the original. McAfee, Pat. No. 1,608,329, puts it this way. "In one way of looking at the action of anhydrous aluminum chlorid upon oils, it involves the establishment of certain equilibria within the oil. The chlorid exercises, so to speak, a sorting and rearranging action by which the hydrogen and the carbon of the hydrocarbons are redistributed into new forms of combination; and this action tends to go forward to some sort of equilibrium between the new bodies produced. The new bodies produced are not necessarily of the same boiling point as those originally present; a fact which I have utilized in certain processes of producing gasoline or gasoline and kerosene from oils of higher boiling point. However, in treating a body of oil with aluminum chlorid the new bodies produced are usually also oils; there is very little formation of gas."

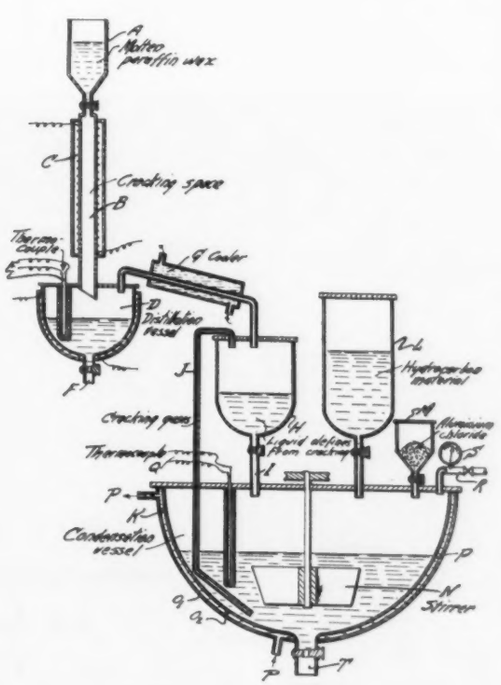


Fig. 5. Apparatus for converting paraffin wax into lubricating oil (Zorn, Mueller-Cunradi, and Rosinsky, Pat. No. 1,965,952)

The following equation visualizes a polymerization reaction in which two molecules of ethylene unite under the action of aluminum chloride to form one molecule of butylene:

$$\underset{\text{H-C-H}}{\overset{\text{CH}_2}{\|}} + \text{H}_2\text{C} = \text{CH}_2 \xrightarrow{\text{AlCl}_3} \underset{\text{H-C-CH}_2\text{-CH}_3}{\overset{\text{CH}_2}{\|}}$$

The reactions that take place in splitting and synthesizing a mixture of different hydrocarbons are, of course, much more complex than the above equation indicates. The above reaction would proceed further building up many ethylene molecules into heavier polymers which form lubricating oil. Nash believes (J.I.P.T. **16**, 1930) that the action of aluminum chloride can be explained on the basis of:

1. Polymerization of ethylene to higher olefins.
2. Isomerization of these olefins to produce corresponding cyclo-paraffins.
3. Cracking of the latter to produce substance less rich in hydrogen at 0° to 20° using $AlCl_3$ Nash obtained two products.

A. An oil, probably unsaturated.

B. A compound of $AlCl_3$ and hydrocarbons from which an oil could not be recovered. Probably unsaturated.

In the electrical process, catalysts are not used. The belief is that hydrogen is split off, thus producing unsaturates which then go through a building up process similar to the $AlCl_3$ synthesis. Both fatty and mineral oils are starting materials, and the ostensible result is a raising of viscosity to almost any desired degree. Nash (Proc. 3d Intern. Conf. Bituminous Coal, **1**, (928-40, 1932) is authority for the statement that electrical synthesis, or voltolization has been carried out commercially by the Rhenania Ossag Mineral Oelwerke A.G.

Electric discharges are used by DeHemptinne, Pat. No. 970,473. Eichwald and Vogel, Pat. No. 1,450,026, use electric currents during polymerization. Henry, 1,961,358, vaporizes hydrocarbons in electric fields (See Fig. 3, p. R-46). Glow discharges are used by Pier, Eisenhut and Eisenhut.

Why FOUR COMPANIES INSTALLED

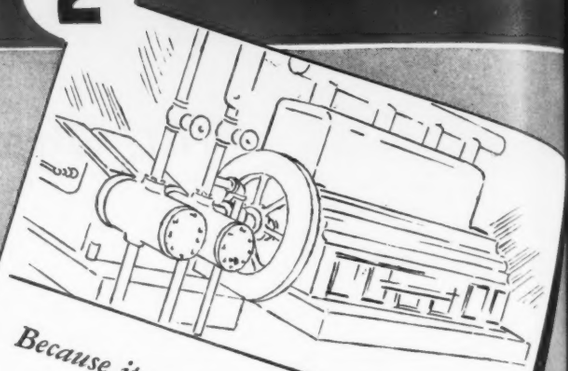
1

Because it saved

by providing a new and cheaper source of an essential processing material.

This refinery uses a large amount of sulfuric acid in processing its major products. The cost of this acid is a considerable item in the operation. The acid is now made from hydrogen sulfide . . . formerly a major nuisance . . . recovered from the refinery still gas by the Phenolate Process. This provides sulfur in the most easily convertible form, and at a fraction of previous cost.

2



Because it saved

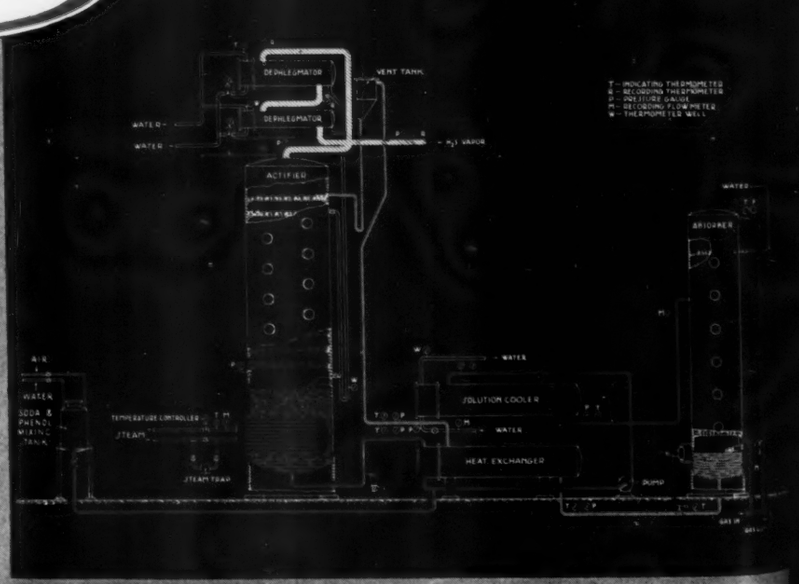
by permitting utilization of natural gas for power units.

This natural gas producer is a large user of power for compressing, and other operations. The cheapest source of the necessary power at hand was natural gas. High hydrogen sulfide content, however, causes excessive deterioration of gas engines. Installation of a Koppers Phenolate plant eliminated the cause of the deterioration, and thus permitted natural gas to be used with maximum economy.

The single stage

KOPPERS PHENOLATE SYSTEM

Removes and Recovers 98% of H_2S



Refinery operators and natural gas producers find this system effective in eliminating corrosive or noxious atmospheres from burned gas and in meeting standards demanding low H_2S content in the gas. Equipment is small, compact, easy to maintain and tend, and so low in cost as to permit quick amortization of the initial investment. Koppers engineers will gladly confer with you on your problem. Communicate with Koppers Co., Engineering and Construction Division, Pittsburgh, Pa.

U. S. Patent Nos. 2,002,357; 2,028,124; 2,028,125

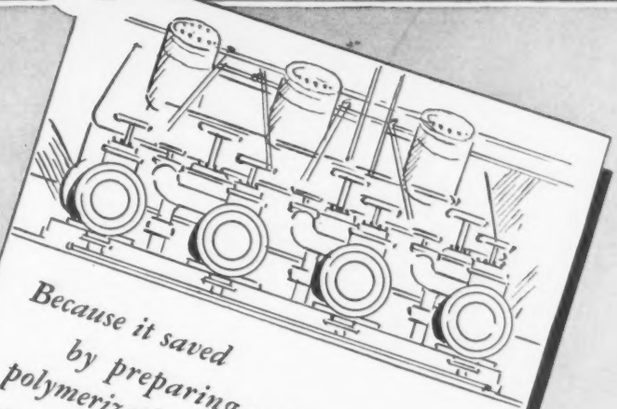
THE KOPPERS PHENOLATE *Purification System*

3

Because it saved
by sweetening gas to serve a profitable Domestic market.

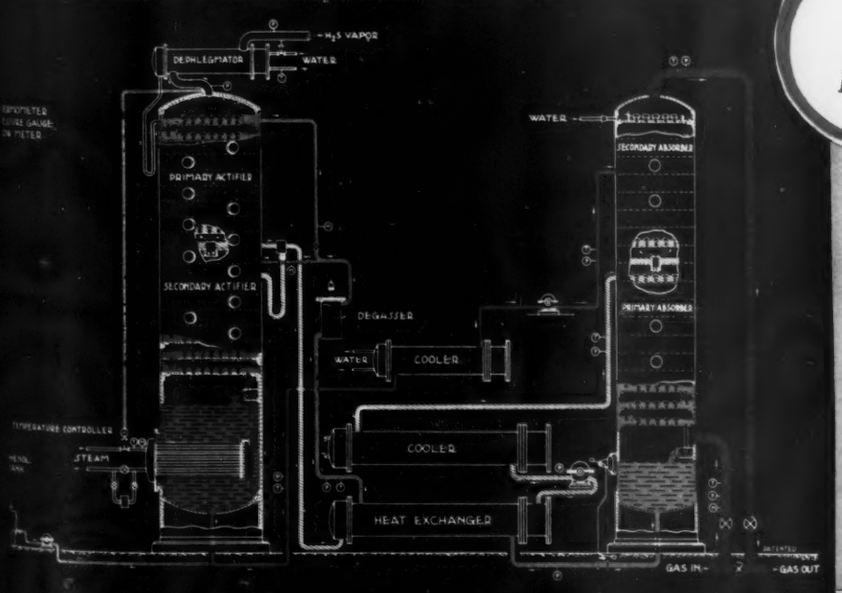
This producer, sinking wells in a field normally sweet, encountered sour gas. Restrictions common in most states prevented the sale of the gas for domestic purposes as originally intended. The entire investment was jeopardized. The installation of a Koppers Phenolate Purification System made the gas marketable, and converted what might have been a serious loss into a profitable operation.

4



Because it saved
by preparing refinery gas for polymerization—inexpensively.

This refiner installed an immense polymerization unit for the production of high-octane motor fuel. A Koppers Phenolate plant prevents the rapid deterioration of the polymerization equipment otherwise inevitable. It also eliminates the necessity for removing, from the finished product, organic sulfur compounds formed from the H_2S. The H_2S is converted to sulfuric acid, establishing an additional credit for the entire operation.



The two-stage
KOPPERS PHENOLATE SYSTEM
Removes and Recovers Virtually All H_2S

This newest development solves the refiners and producers problems when any appreciable amount of H_2S would have a detrimental effect in further processing or utilization. Exclusive features, *fully protected by patents,* permit actification of part of the solution to such a high degree that second-stage scrubbing removes practically all H_2S. This is done without the use of extra steam, and without the great increase in size and cost of equipment, which would be necessary to duplicate the results with separate systems.

U. S. Patent No. 1,971,798

K O P P E R S *product*

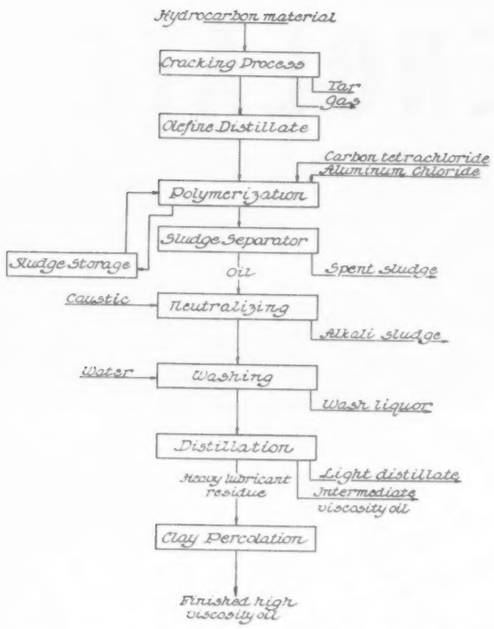


Fig. 6. Flow sheet showing steps in production of synthetic lubricant (Snow, Pat. No. 1,970,402)

Petroleum is the commonest source of compounds synthesizable into useful lubricating oils. Light hydrocarbons of petroleum distillates are polymerized by Brownlee, Pat. Nos. 1,309,432 and 1,374,277. Unsaturated petroleum fractions are synthesized by Moody, 1,601,406. Egloff, 1,850,869, states: "This invention relates to improvements in process of treating a residuum produced from cracked petroleum oil, the object being to convert more or less of said residuum to high grade lubricating stocks by polymerization." The object of Halloran and Chappell, 1,893,774, is to process oils, that cannot be profitably utilized by refining processes to provide lubricants, by polymerizing same. Egloff, 1,960,625, provides a process for treating out objectionable unsaturates, ordinarily lost, to convert them into valuable lubricants (Fig. 4, p. R-46). Petroleum waxes are used as starting materials by Snow, 1,970,402 (Fig. 6). Ayres and Smith, Pat. No. 2,010,-387, give the following interesting discussion: ". . . . Within the past few years there has arisen an important demand for lubricating oils of diverse but specific properties. The usual procedure employed to obtain oils with specific properties has been to derive such oils from an appropriate crude petroleum, because each crude is capable of yielding oils of certain characteristic properties. It has not always been possible, however, to obtain certain extreme combinations of properties by the ordinary refining methods, and it has not always been practicable to depend upon the availability of a sufficient variety of crudes to satisfy market demands. Various methods have been proposed for the modification of the properties of lubricating oils to simulate in certain respects the properties of lubricating oils from other types of crudes, but all such methods have been of limited usefulness. Some of the methods, such as extraction with liquid sulfur dioxide, are limited in the degree of change of properties, and other methods, such as hydrogenation, are limited in the direction in which the change is effected.

"Hydrogenation, for example, is incapable of increasing the viscosity of the oil and is also incapable of producing a lower viscosity index. For many applications a high viscosity index is desired, but in some applications, such as the preparation of certain greases, very low viscosity indices are required. This invention offers a flexible method by which any property of a lubricating oil may be changed in either direction at will by selection of suitable conditions.

". . . . We have found that, by treating various lubricating oils with halogenated hydrocarbons in the presence of aluminum chloride and at moderate temperatures, a remarkable and specific alteration of their properties is effected. The characteristics of such stocks are changed in various ways, depending to some extent upon the nature of the chlorinated hydrocarbon used and upon the conditions of treatment. In general, treatment with halogenated hydrocarbons having not more than a single halogen atom attached to any one carbon atom increases the A.P.I. gravity, lowers the carbon residue and raises the viscosity as well as the viscosity index. By this method, for example, coastal lubricating oils having low gravity, viscosity and viscosity index can be so far improved that their properties approach those of the best grade paraffin type, mid-continent oils. But by selection of the particular hydrocarbon halide used in the process, it is possible to change the properties of an oil almost at will."

Other patents disclosing processing of mineral oil, and other petroleum products to produce synthetic lubricants, are Davis, Pat. No. 1,934,043, Ayres and Smith, 2,019,037, Van Peski, 2,019,772, MacLaren 2,030,632 and Osterstrom, 2,090,333.

Experiments have probed the possibilities of lubricating oils from simple compounds. In the laboratory, at least, lubricant oils can be built up. Wietzel, Speer and Kaehler, Pat. No. 1,798,288, start with carbon monoxide and hydrogen, build up to olefines and condense with aluminum chloride. Aromatic ethers constitute the raw materials of Grebe and Stoesser, Pat. No. 1,905,-850. Britton, 2,051,404 starts with diphenyl oxide. Towne, 2,084,927, makes synthetic oils from benzene and ethylene or propylene chloride.

In this review we have purposely omitted simple hydrogenation, although some authorities include hydrogenation under the heading of synthesis. Primarily, the reason for excluding hydrogenation is one of convenience, hydrogenation including a vast mass of matter in itself, which it would be inexpedient to include in this digest. Hydrogenation of coal to produce lubricants has been mentioned above.

30. Pier, Eisenhut and Eisenhut, 1,964,891. I. G. Farbenindustrie A. G. July 3, 1934. Hydrocarbon oils are subjectetd to a glow discharge at high voltage to increase the viscosity. The process is expedited by the presence of powdered brown coal, wood charcoal, coal ash, colloidal or pulverulent metals, metal oxides, etc. (Fig. 3, p. R-46)

31. Pier and Christmann, 1,965,390. I. G. Farbenindustrie A. G. July 3, 1934. Unsaturated hydrocarbons are condensed in stages carried out at successively higher temperatures.

32. Zorn, Mueller-Cunradi, and Rosinsky, 1,965,952. I. G. Farbenindustrie A. G. July 10, 1934. Lubricating oil is made by partially condensing a hydrocarbon, either an olefin obtained by cracking wax or a pyrogenous conversion of bituminous material, then mixing and condensing the mixture. (Fig. 5.)

33. Snow, 1,970,402. Standard Oil Co. (Indiana). Aug. 14, 1934. Lubricating oils of low cold test and high viscosity are produced by polymerizing unsaturated hydro-

34. Haeuber, 1,971,301. I. G. Farbenindustrie A. G. Aug. 21, 1934. In converting olefinic hydrocarbons into higher boiling point products capable of being worked up into lubricating oils, a double compound of ethylene and aluminum chloride is used as catalyst, to obviate objectionable formation of asphaltic products.

35. Ayres and Smith, 2,010,387. Gulf Refining Co. Aug. 6, 1935. Coastal oils having low gravity, viscosity and viscosity index are heated with chlorinated hydrocarbons, for instance amylene chloride or benzyl chloride, in the presence of aluminum chloride, whereby a product is obtained having properties which approach those of the best grade paraffin type, mid-continent oils. Apparently a synthesis takes place.

36. Clark and Kutz, 2,012,302. General Electric Co.

Hanlon-Buchanan, Inc

PIONEER NATURAL GASOLINE MANUFACTURER

EXPORT TERMINALS:
Goodhope, La.
Houston, Tex.
Corpus Christi, Tex.

TULSA, OKLAHOMA
NATIONAL BANK OF TULSA BUILDING
PHONE 4-1101 or L.D. 398 WIRE — OR WRITE P. O. BOX 1559
Cable Address . . . STAVOLENE, Tulsa, U. S. A.

FOREIGN REPRESENTATIVE
Barks, Williams & Co., Ltd.
4 Lloyd's Ave.
London, England

Aug. 27, 1935. Compounds useful as lubricants and other purposes are prepared by a Friedel-Craft reaction. One example is hexachlor diphenyl methane.

37. Ayres and Smith, 2,019,037. Gulf Refining Co. Oct. 29, 1935. Lubricating oil of high quality is made from mixtures of technical petroleum stocks ranging in type from tar residues to light distillates, by heating same in the presence of anhydrous aluminum chloride and added HCl.

38. Van Peski, 2,019,772. Shell Dev. Co. Nov. 5, 1935. In order to produce uniform yields of satisfactory synthetic lubricating oils from naturally occurring petroleum sources, particularly cracked distillates of wax-free oils, the distillates are first deprived of certain objectionable compounds the exact chemical nature of which is not described, but which may be removed by distillation, extraction, polymerization, etc. The refined distillate then is condensed or polymerized to produce synthetic oils.

39. MacLaren, 2,030,832. Standard Oil Co. (Indiana). Feb. 11, 1936. Lubricating oils are synthesized from materials which have little or no value as lubricants in themselves. The synthetic, which has a high viscosity index, is made for example, by condensing chlorinated hydrocarbon wax and diphenyl with aluminum chloride.

40. McAfee and Crockett, 2,049,014. Gulf Oil Corp. July 28, 1936. The viscosity index of a petroleum lubricating stock is raised by treating with aluminum chloride at 425°F.

41. Britton, 2,051,404. Dow Chemical Co. Aug. 18, 1936. Diphenyloxide ($C_6H_5.O.C_6H_5$) is heated between 400°C, and the decomposition point to produce a lubricant of exceptional stability at high temperatures.

42. Loebel, 2,051,612. Shell Dev. Co. Aug. 18, 1936. A mineral oil, paraffin wax, wax tailings, paraffinous shale oil, paraffinous distillates, ozokerite, ceresin, or a residue of brown coal-tar treatment is cracked in the liquid phase, refined, and recracked in the vapour phase to produce olefines which can be polymerized to lubricating oils and the like.

43. Malishev, 2,055,415. Shell Dev. Co. Sept. 22, 1936. Synthetic lubricating oils and other products are obtained by polymerizing unsaturated hydrocarbons with the aid of phosphorus pentoxide as a catalyst.

44. Caudri, 2,055,425. Shell Dev. Co. Sept. 22, 1936. Synthetic oils, stable against oxidation, are formed by polymerizing a vapor phase cracked distillate which has been pretreated with a small quantity of a catalyst at an elevated temperature, and separated from the sludge thus formed, to eliminate undesirable catalyst poisons.

45. Van Peski, 2,067,030. Shell Dev. Co. Jan. 5, 1937. Any cracked distillate is composed of fractions having different polymerizing qualities. By distillation fractions of relatively high polymerizing quality are separated. These are polymerized to produce a synthetic oil.

46. Osterstrom, 2,067,334. Pure Oil Co. Jan. 12, 1937. A process for treating unsaturated hydrocarbon distillate produced by vapor phase cracking, in order to prepare therefrom finished motor fuel and lubricating oil, which comprises contacting said distillate with an adsorptive polymerizing catalyst at temperatures of the order of 500°-600°F. under pressures sufficiently high to keep distillate in the liquid phase in order to selectively polymerize the color-imparting and gum-forming constituents contained therein, separating from the polymers, hydrocarbons boiling within the motor fuel range, said hydrocarbons containing a large percentage of unsaturated compounds but being substantially devoid of color-producing and gum-forming bodies, distilling the polymers under sub-atmospheric pressure below cracking temperature to remove therefrom pitch-like substances as a residue, condensing a viscous distillate fraction, subjecting said fraction to refining with sulfuric acid in order to remove impurities therefrom, and neutralizing the acid treated distillate. (Fig. 7.)

47. Langedijk and Van Peski, 2,076,201. Shell Dev. Co. Apr. 6, 1937. Isobutylene is passed at 15°C. into a solution of 10 grams stannic bromide in 90 grams of nitrobenzol. The gas is polymerized to liquid hydrocarbons. After steam distillation a yellowish brown, viscous oil remains with good properties as a lubricating oil. By combining an inorganic halide with a suitable organic compound or by dissolving it in a suitable organic liquid the polymerization power of the halide is modified in such a way that the polymerization proceeds up to a well defined stage.

48. Story, 2,077,781. The Texas Co. Apr. 20, 1937. A method of producing a synthetic lubricating oil which comprises mildly cracking paraffin wax to produce a product containing a substantial proportion of unsaturated hydrocarbons, chlorinating the cracked product, and condensing in the presence of aluminum chloride.

49. Gardiner, Greene, and Lyman, 2,082,203. Standard Oil Co. (Calif.). June 1, 1937. Hydrocarbon lubricating oils having high viscosity indices are made by polymeriz-

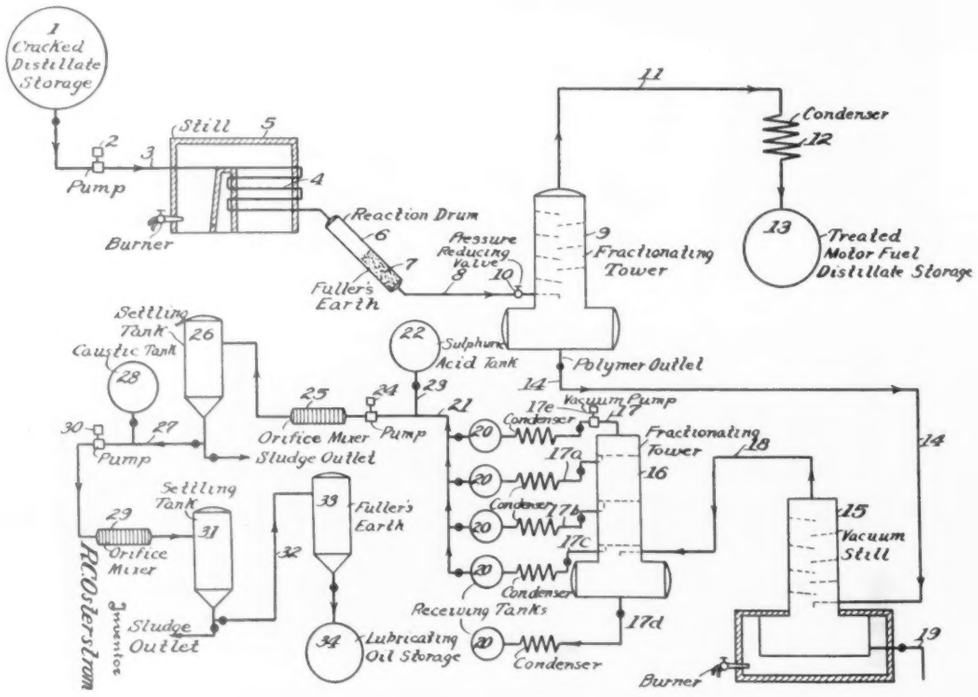
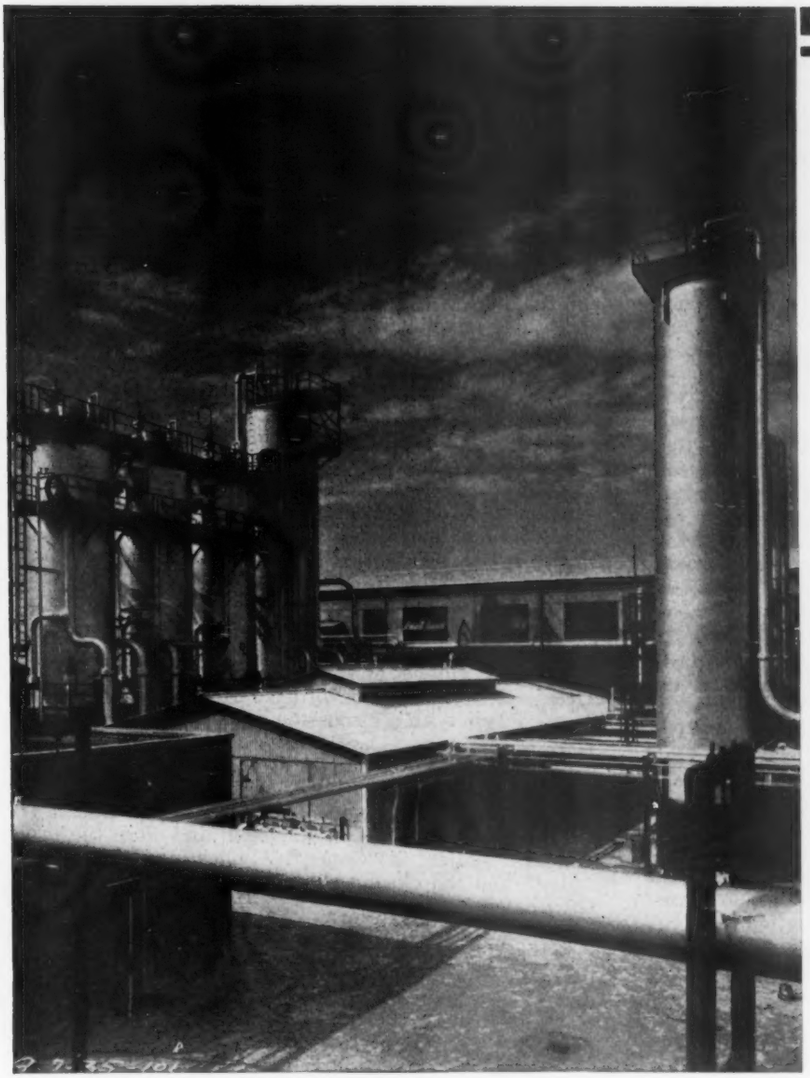


Fig. 7. Conversion of cracked distillates into motor fuel and lubricating oil (Osterstrom, Pat. No. 2,067,334)



THE MANUFACTURE OF LUBRICATING OILS REQUIRES A HIGHLY SPECIALIZED KNOWLEDGE OF PROCESSES—EQUIPMENT—CONSTRUCTION AND OPERATING CONDITIONS

Kellogg-built lubricating oil process units have incorporated in their design the benefits of the latest advances in research development and engineering experience.

As licensing and construction agent for the JUIK processes, Kellogg offers refiners a choice of various combinations, as shown to the left.

Propane Dewaxing • Acid Treatment in Propane • Propane Deasphalting and Deresinating • Phenol Extraction (Single Solvent) • Phenol and Cresylic Acid Extraction in the presence of Propane

THE M. W. KELLOGG COMPANY • JERSEY CITY, NEW JERSEY • 225 BROADWAY, NEW YORK

Los Angeles: 1031 South Broadway • Tulsa: Philtower Building • EUROPEAN REPRESENTATIVE: Compagnie Technique des Petroles, 134 Boulevard Haussmann, Paris, France

KELLOGG

LICENSING AND CONSTRUCTION AGENTS under United States and Foreign Patents for: Gasoline Products Company, Inc. - Cross - Holmes-Manley - de Florez - Tube and Tank - Combination - Cracking Units • • • The Polymerization Process Corporation - Gas Polymerization Units • • • The Gray Processes Corporation - Clay Treating • • • Standard Oil Company (New Jersey) - Standard Oil Company (Indiana) - Union Oil Company of California - Lube oil refining with Propane and Phenol • • • Deasphalting - Dewaxing - Solvent Extraction and Acid Treating Plants

ing olefins produced by dehydrogenating paraffin waxes. The dehydrogenation may be brought about by chlorination followed by dechlorination.

50. Gardiner, Greene, and Lyman, 2,082,204. Standard Oil Co. (Calif.). June 1, 1937. This is a division of Pat. No. 2,082,203, and relates more particularly to the production of oil of higher molecular weight range than that of the hydrocarbons from which they are prepared.

51. Towne, 2,084,927. The Texas Co. June 22, 1937. Synthetic oils are manufactured from benzene and ethylene or propylene chloride.

52. DeSimo and Hilmer, 2,085,524. Shell Dev. Co. June 29, 1937. Olefins are polymerized under catalytic action of boron fluoride, hydrogen fluoride, aluminum chloride, zinc chloride, or iron chloride, the temperature of reaction being maintained within the range —20°C. to —80°C. The polymers produced vary from highly viscous liquids to rubber-like materials, depending on the specific conditions of manufacture, are soluble or dispersable in hydrocarbon oils, and can be used as constituents of lacquers or lubricating oils.

53. DeSimo and Hilmer, 2,085,525. Shell Dev. Co. June 29, 1937. Polymers, synthetically made, are frequently unstable. If, however, they are subjected for a number of hours to an intense shearing or milling operation, there is a point at which they do not break down any further. The assumption is that the more unstable polymers are broken to fragments by the mechanical action. In any event, the polymers so treated are rendered more stable.

54. Waterman, 2,088,500. Shell Dev. Co. July 27, 1937. Crude oils, such as those found in Borneo and California, distillates and residues from same, Edeleanu extracts, hydrogenated coal or coal-tar products, are reacted with acetylene in the presence of aluminum chloride. The acetylene reacts with the aromatic hydrocarbons, converting at least part to higher molecular weight compounds. Lubricating oils of improved viscosity index are thus produced.

55. Osterstrom, 2,090,333. The Pure Oil Co. Aug. 17, 1937. The unstable, unsaturated hydrocarbons which are formed during vapor phase cracking operations, are converted into lubricants by selective polymerization, and removed from the distillates of motor fuel grade. A two-fold purpose is served: a refined motor fuel is prepared and the undesirable constituents of the fuel are converted into a useful lubricant.

56. Sullivan and Voorhees, 2,091,398. Standard Oil Co. (Indiana). Aug. 31, 1937. Olefin compounds of at least 8 carbon atoms, and particularly straight-chain olefin compounds are subjected individually to the action of aluminum chloride. Heavy oils are secured which are markedly superior in the temperature-viscosity characteristics, to natural oils of Pennsylvania origin.

57. Sullivan and Voorhees, 2,091,399. Standard Oil Co. (Indiana). Aug. 31, 1937. Synthetic lubricating oils are made from paraffin wax, which are characterized by a viscosity index of 101 to 133.

58. Gardiner, Greene and Lyman, 2,094,593. Standard Oil Co. (Calif.). Oct. 5, 1937. Hydrocarbon lubricating oils which have extremely flat viscosity-temperature curves, higher than the most superior naturally occurring oils, and which can be used straight or blended with natural oils, are synthetically produced. The molecular structure approaches the normal straight-chain paraffines. For example paraffin wax is dehydrogenated to form olefins which are polymerized to form higher molecular weight hydrocarbons. Dehydrogenation is effected by chlorination, followed by dechlorination.

Tool Show Announced

CLEVELAND, Feb. 21.—Timed to coincide with the beginning of the peak buying seasons in mass production industries, for machinery, tools, production equipment and materials, a national Machine and Tool Progress Show, will open in Detroit, March 9. The show is sponsored by the American Society of Tool Engineers in connection with its first annual convention, which will be a four-day technical session.

Metals for Petroleum Industry Have Place in Metal Congress

LOS ANGELES, Feb. 19.—Metals used in the petroleum, aviation, general manufacturing, chemical and mining industries will be given particular attention here March 21-25 during the Western Metal Congress and Exposition sponsored by the American Society for Metals. The exposition, held here eight years ago, was attended by 60,000 but effort is being made to eliminate curiosity seekers and to attract only 25,000 who are concerned with metal fabrication and consumption.

Eighteen national technical societies are co-operating in the event. Among these are the American Petroleum Institute (California division), American Society of Mechanical Engineers, American Chemical Society, American Institute of Mining and Metallurgical Engineers (Institute of Metals), and the American Society for Testing Materials. P. D. McElfish, Standard Oil Co. of California, will serve as co-operation chairman on the general committee on arrangements.

Seven speakers have been obtained for the petroleum sessions. At the first, Tuesday morning, chairmen are Clarence Froome, Union Oil Co., and T. W. Jurling, Byron-Jackson Co. "Metals Used in Petroleum Production" will be presented by H. W. McQuaid, Republic Steel Corp. "Metals Used in Pipe Line and Pipe Line Station Construction" will be covered by L. F. Scherer, Texas Pipe Line Co., while the "Theory and Practice in Pipe Protection" is the subject of Dr. G. N. Scott, pipeline technologist. George Scherer, Merco-Nordstrom Co., will close the morning program with a discussion of "Valves for the Petroleum Industry."

A refining program will be scheduled for the afternoon. Chairmen are K. V. King, Standard Oil Co. of Cal., and Ray Russell, Petroleum Equipment Co. R. L. Wilson, Climax Molybdenum Co., will open and close the program. His first subject is "General Application of Metals in Refining" and the closing subject is "Alloy Steel for Tubular Oil Heaters." Two speakers will give Mr. Wilson a breathing spell. Second subject on the program is "High Temperature Characteristics as Revealed by Rupture Tests," prepared by W. C. Hildorf, Timken Roller Bearing Co., and C. L. Clark, University of Michigan. E. C. Wright, National Tube Co., will then present "Typical Failures of Still Tubes in Refinery Service."

Another petroleum session is scheduled during the week by the American Society of Mechanical Engineers which is holding its Spring meeting (national) in conjunction with the exposition. The meeting will cover the design of oil furnaces, pipelines progress in deep well pumping, and deep well drilling, it has been announced. More details of the program will be found elsewhere in this issue.

International Chemical Meet Announced

The tenth International Congress for Chemistry will be held in Rome, May 19-21, it is announced by the general secretary of the congress. The organizing committee, under H. E. Nicola Parravano, has prepared a program to be announced later but is to give a complete review of this field. Subjects have been grouped "following criterions which are quite original and utterly different from the traditional ones."

Applications for joining the congress must be sent to the General Secretariate of the Congress, Rome, Via Panisperna, 89 A, before April 1. Presentation of reports may be made until April 15, if notice is received by March 15.

Consultant's Directory

The Association of Consulting Chemists and Chemical Engineers has issued the fourth edition of its directory of members covering the type of work these consultants are prepared to undertake. Headquarters of the association are 50 East 41st St., New York.

"State of the Art" AS SEEN IN THE WORLD'S CURRENT TECHNICAL LITERATURE

By M. G. VAN VOORHIS
N. P. N. Staff Writer

Gas Oil Pyrolysis

Gas oil yields high percentage of olefins and conjugated dienes. H. Tropsch, C. L. Thomas, G. Egloff, and J .C. Morrell, Ind. Eng. Chem., Ind. Ed., Feb. 1938, *p.* 169.

Gas oil can be made to yield useful products corresponding to 73% by weight of the charge by pyrolysis at 950° C. (1742° F.) and 175 mm. pressure with a contact time of 0.05 second. Ethylene comprises 28.2%; propene, 19.7%; butadiene, 6.6%; butenes, 8.3%; pentadiene, 3.1%; and higher conjugated dienes, 7.2%. Butadiene yield is not greatly influenced in the temperature range, 800-1000° C., and pressure range, 50-500 mm., provided 50-75% of the oil charge is gasified.

About 50% of the liquid hydrocarbons boiling below 200° C. (392°F.) consists of conjugated dienes. As would be expected, the gasoline has a pronounced tendency to form gum and become discolored. The octane number is 90 and density is 0.837.

The mechanism of the formation of the conjugated dienes has not been established. The laboratory apparatus was arranged so that gas oil from a charging buret could be passed through a capillary feed control to a flash pot (750° F.). Vapors leaving the flash pot passed into a silica reaction tube (1 cm. i.d.) packed with 6-10 mesh porcelain chips and heated in an electric furnace. The condensing and collecting system consisted of water-cooled and dry-ice-cooled or liquid-nitrogen-cooled traps. A glycerol-filled Nelson vacuum pump permitted collection of the gaseous products.

Better yields of butadiene were obtained in a reaction tube containing a granulated packing than in an empty tube. The packing was covered with a thin deposit of carbon in the first few minutes of the reaction and it was apparently the type of carbon deposited that influenced the reaction rather than the packing itself. Although experimental difficulties prevented the percentage gasification from being kept as constant as was desired, there was a definite trend upward in butadiene concentrations and yield.

* * *

Process for Oil "Ore"

Plant of new design will process oil-impregnated earth from surface deposit. T. P. Sanders, Oil & Gas J, Feb. 3, 1938, *p.* 40.

Experimental processing of strip-mined oil-impregnated diatomaceous earth has been in progress for some time at Los Angeles by L. E. Walther for a Minnesota construction company. Another attempt to remove oil from a deposit near Santa Maria, Cal., will be made this year in a plant similar to the experimental plant with capacity for 500 tons per day.

The proposed plant will operate as a continuous process in which oil-impregnated material will pass through a revolving oven heated to 1100° F. to drive off oil as vapors. More than enough gas to supply heat to the process will be liberated, experiments show, but carbon remaining in the earth may also be used as fuel.

To prevent introduction of air with the ore, which is a serious problem, an air-tight plunger is to be used. A helix inside the rotary oven will carry the material through the furnace in about 45 minutes. The furnace is so designed that the vapors, after being driven from the ore will pass through an annular space around the incoming ore to impart to it some of its heat.

Experimentally, a yield of 64 gallons of oil per ton of raw material has been obtained. Gravity of 60% of the output is 25 to 28 A.P.I. degrees while the rest is 20-gravity oil. The product is rich in aromatics.

The diatomaceous earth remaining after calcining is marketable. An offer of 50 cents a ton has been made. The deposit is of such extent that it would last 150 years if used at the rate of 10,000 tons per day. Mining is to be carried on with a power shovel using dynamite to dislodge the ore.

* * *

Polymerization Control

Polymerization products and reactions are given systematic study. H. I. Waterman and J. J. Leendertse, Jour. Inst. Pet. Tech., Jan. 1938, *p.* 16.

Suitability of polymerization processes for producing desired properties in products may be determined by an extensive and systematic investigation of the polymerization reactions. Such a research should take into consideration the effect of base material and polymerization conditions in the properties of the hydrocarbon mixtures formed, and also establish a direct quantitative relation between the composition and the properties of these mixtures.

Since determination of composition is practically impossible, average composition suggests itself but the ultimate object being to establish a direct general relation between the properties of the mixtures and their structure, the factors to be determined are those in the structure governing the properties in question.

In general the properties to be considered besides the average molecular weight are the average cyclic character, the average number of branches (or the number and nature of the side chains of the ring systems), and the degree and nature of the unsaturation. Also an influence may be expected from differences in the type of rings, in the nature of the branches and from the presence of traces of impurities. A method previously worked out by the authors* was employed for determining the average cyclic character of hydrocarbon mixtures.

A number of aliphatic olefines (ethene, butenes, pentenes, octenes, decenes, hexadecene) and some cyclic unsaturated hydrocarbons (pinene, cyclohexene, and tetraline) were utilized for the investigation. In most cases the catalyst was aluminum chloride. Experiments were conducted at —78° C., room temperature, 50-70° C., and 125-150° C.

A considerable yield of high-molecular hydrocarbon mixtures was obtained even at the lowest temperature. The action of aluminum chloride was found not to be limited to "true" polymerization. In almost all cases examined, secondary reactions were found to occur. For instance, when aliphatic olefines are polymerized, cyclization often occurs.

*J.I.P.T., 1935, Vol. 21, p. 661,701

INTERPRETING THE TREND

Refinery practice points to a new high level of technical achievement — improvements in design — advancements in operating technique.

Gasoline Products Company, through its comprehensive facilities and in conjunction with several of the major refining organizations, maintains an integrated program of research and development.

An association with a licensing organization, comprehensively interpreting changing economic conditions, is a step toward protecting present as well as future profits.

LICENSES granted under United States and Foreign Patents for: Cross, de Florez, Holmes-Manley, Tube and Tank Cracking Processes, Uni-Coil Injection Process and Combination Cracking Units.
Licensing Agents: THE M. W. KELLOGG CO., Jersey City, New Jersey, or its *European Representative* COMPAGNIE TECHNIQUE des PETROLES, 134 Boulevard Haussmann, Paris, France.

GASOLINE PRODUCTS COMPANY

INCORPORATED

11 COMMERCE STREET · NEWARK, NEW JERSEY

Hexadecene was the only one in the series investigated which yielded polymerization products which, after hydrogenation, gave purely paraffinic products.

Plots of molecular weight against specific refraction and number of rings per molecule obtained by a true polymerization indicate that by varying the base material and the conditions of polymerization, practically any desired composition (as far as it is expressed by the cyclic character) can be obtained. If, therefore, the properties of hydrocarbon mixtures should be governed solely by the cyclic character of the products, it would be possible to comply with any demand for products having certain properties by polymerizing low-molecular unsaturated hydrocarbons.

When the method was applied to investigating the cyclic nature of polymers (probably intensively branched) there were no deviations as a result of structure effcts. In many such cases, cracking was assumed to take place during polymerization. With "true" polymerization of aliphatic olefines followed by complete elimination of the unsaturatedness of the products by cyclization, the number of rings per molecule cannot exceed one. By cracking or dehydrogenating the cyclic products, the degree of unsaturation required for further cyclization can then be attained.

The extent to which the parachor would measure the degree of branching of hydrocarbon mixtures was also studied. The influence of the unsaturation of the products was eliminated by considering only completely hydrogenated mixtures and the cyclic character of the products was fully known by applying the specific refraction molecular-weight method.

The parachor is defined as:

$$P = \frac{s^{1/4} m}{D - d}$$

in which s = surface tension, D is specific gravity of the liquid at the temperature at which s is measured, d is specific gravity of the vapor corresponding to the liquid under the conditions of measurement, and m is the molecular weight of the substance in question.

By comparing the composition of saturated hydrocarbon mixtures, as derived from the specific refraction and the specific parachor diagram (the latter based on the atomic parachors of Mumford and Phillips) it was possible to form a qualitative idea of the degree of branching of the hydrocarbon mixtures considered. This method is particularly suitable for judging the branching of mainly ailphatic hydrocarbon mixtures.

With highly cyclic oils the specific parachor may be affected not only by branching but also by differences in ring type. Insufficient parachor values of pure hydrocarbons make it impossible to determine how far the number of branches found in this manner agrees quantitatively with the actual number of branchings of the hydrocarbon mixtures.

Nevertheless, the "apparent extra cyclic character" or the "number of extra tertiary carbon atoms", and the "number of extra tertiary carbon atoms in a paraffinic part of the molecule with a molecular weight 100" constitute average figures directly related to the manner in which one of the physical properties of the mixtures is affected by certain molecular structures. Thus it may be expected that they can be used successfully for judging other definite properties of hydrocarbon mixtures.

* * *

Alcohol-Gasoline Blends

Gasoline and ethyl alcohol blends of 10% and 20% are compared in engine tests. L. C. Lichty and C. W. Phelps, Ind. Eng. Chem., Ind. Ed., Feb. 1938, *p.* 222.

To warrant the use of ethyl alcohol in 10% and 20% blends with gasoline in engines with optimum compression ratios for present regular grade gasoline, based on fuel consumption, ethyl alcohol should cost less than gasoline. If both the blend and the gasoline are used in engines with optimum compression ratios suitable for each of the fuels, the cost should be about the same. Blends should cost less than gasoline with sufficient tetraethyl lead to permit operation in engines with optimum compression ratios for the blends. The addition of ethyl alcohol to gasoline increases the octane number: 10% alcohol being equivalent to 1 cc. of tetraethyl lead per gallon of gasoline and 20% being equivalent to 2 cc.

In laboratory tests an increase in the brake specific fuel consumption of 5% and 9% in a multicylinder engine resulted from the use of 10% and 20% blends respectively, of ethyl alcohol compared with gasoline. The same compression ratio was used in each instance with the carburetor adjusted to give air-fuel ratios comparable for each fuel in regard to maximum power or maximum economy. Applying the multicylinder power and fuel consumption data to motor vehicles on the highway under the same conditions, the substitution of alcohol blends for gasoline should result in an increase in volumetric fuel consumption of about 5% and 7%.

Using air-fuel ratios equal to or richer than maximum power for gasoline and without adjustment of air-fuel ratio on substitution of the 10% and 20% blends, a decrease in volumetric fuel consumption of about 2% and 3%, respectively, should be obtained. However, the lowest fuel consumption can be obtained with gasoline by adjusting the carburetor for maximum economy mixture.

Considerably less energy is liberated either on a weight or a volume basis in the combustion of ethyl alcohol than with gasoline. However, considerably less air (40%) is required for a given weight of alcohol which results in approximately the same energy liberation per standard unit volume of correct air-vapor mixture for each fuel.

Lower mixture temperatures with ethyl alcohol than with gasoline and therefore higher volumetric efficiency and greater power output are confirmed. Based on heating value alone, the value of ethyl alcohol is about two-thirds that of gasoline. Better antiknock characteristics enable use of alcohol in engines with higher compression ratios than with gasoline. While this tends to put the two fuels on a more nearly equal basis when each is used in an engine with optimum compression ratio, both theory and experiment show that present average compression ratios would have to be more than doubled when using alcohol before efficiencies would be reached to offset this difference in energy content per gallon. This is believed to be impractical.

* * *

Acidity is Index of Oil Deterioration

Lubricating oil deterioration is measurable in some oils by acidity test. A. R. Rescorla, F. L. Carnahan, and M. R. Fenske, Ind. Eng. Chem., Anal. Ed., Dec. 15, 1937, *p.* 574.

The general problem of lubricating oil deterioration in use has been studied on the basis of development of acidity in certain lubricating oils by oxidation. Increases in viscosity, sludge content, and carbon residue value of oils subjected to oxidation at elevated temperatures are in many instances accompanied by development of acidity.

In such cases the acid content may be followed by an electrometric method. Some of the oil samples studied were obtained from engine tests, the remainder from a laboratory oxidation procedure. Four oils were used: a conventionally refined Pennsylvania oil in the S.A.E. 30 range, a neutral, an oil containing 5% sperm oil, and an unfiltered Pennsylvania neutral.

In these oils acid formation seemed to be related to viscosity increase as well as to sludging. In general, lubricating oils increase in viscosity on oxidation, more viscous oils being more susceptible to this type of deterioration. Lighter oils blended from the same stocks tended to form a greater proportion of sludge. Viscosity increase in oils is probably due to both sludge formation and polymerization.

Plotted results showed increases of neutralization number with sludge increase, viscosity, increase of carbon residue, iron content, and time of oxidation, in the case of laboratory tests. In most cases the change in neutralization number was greatest during the early stages of the tests. Presence of copper in the oxidation tests greatly accelerated oil deterioration.

Classifying Asphalts by Means Of Penetration Index

By J. Ph. PFEIFFER* and P. M. VAN DOORMAL**

● Because of the time required to make absolute viscosity determinations these authors have worked out a method for determining "Penetration index," based on the relationship between penetration values and the softening point by the Ring-and-Ball Method. From the equations of viscosity in poises based on these two values, an equation is developed from which a nomogram is prepared as shown in Fig. 3. A slide rule for quick determination of the Index is also described.

A YEAR AGO the authors published in the Journal of the Institution of Petroleum Technologists[1]) a study on the rheological properties of asphalts, part of which dealt with the classification of asphalts based on their rheological properties. Since the characterization of asphalts according to their rheological behavior in general and to their temperature susceptibility in particular is the subject of many publications in the United States, it may be of interest to publish this part of the study in a revised form, to suit conditions in this country.

I. Classification of Asphalts Based on Their Rheological Properties

It is well known that the properties of asphalts may vary considerably according to the nature of the base material they are derived from and the method of producing them. It is also well known that the so-called blown asphalts often used for pipe-line protection differ from the asphalts generally utilized for road making in being less susceptible to temperature changes. By this is meant that the consistency of these blown asphalts changes more slowly with temperature than that of road asphalts. Since in nearly all technical applications of asphalts the material has to be worked up at a comparatively high temperature and yet must possess a definite "hardness" after cooling, it is natural that research work in the physical laboratory has been especially directed towards problems relating to the viscosity and the changes in this property with temperature.

The wide temperature range over which viscosity determinations have to be made because of the great variety of asphalt applications and the great divergence in hardness of the various grades makes it necessary to measure viscosities ranging from 1 to 10^{10} poises, with the result that several different methods must be used. Saal[2],[3]) and

*N. V. De Bataafsche Petroleum Maatschappij, Amsterdam, Holland.

**Shell Development Company, Emeryville, California.

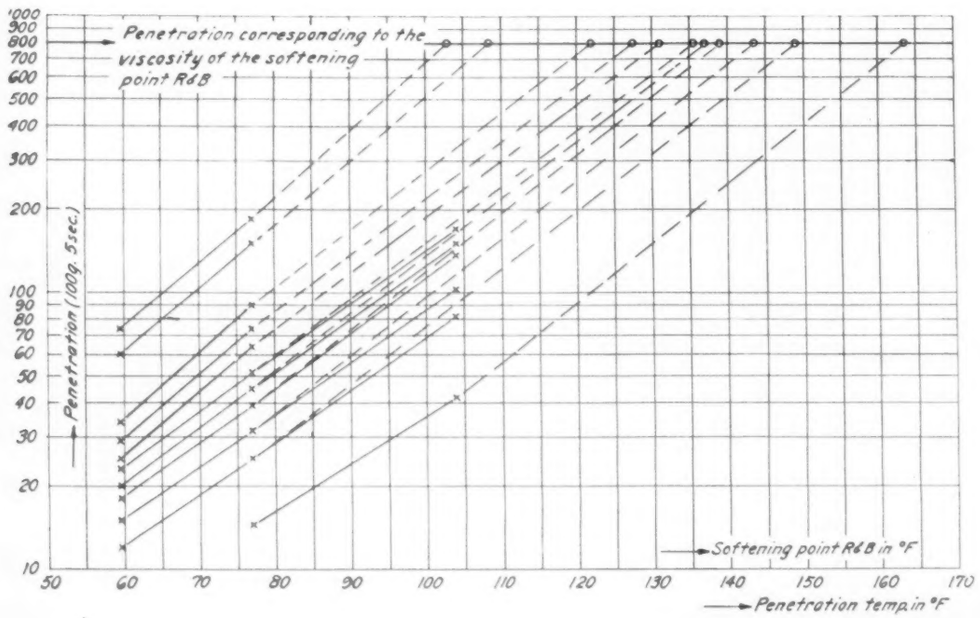


Fig. 1. Penetration curves of Mexican steam-refined asphalts, which were made by steam distillation of the same base material

DON'T wait for a decision on solvent extraction to put in Sharples centrifugal acid treating. The single solvent processes require acid treating anyway, and by the time the solvent process is operating, the Sharples plant will probably have repaid its costs.

Sharples' experience in centrifugal acid treating is world wide. Plants are operating in the United States, Argentina, France, Italy, Czechoslovakia, Germany, Japan and Spain.

☆

The Sharples Specialty Company

2356 WESTMORELAND STREET

PHILADELPHIA, PA.

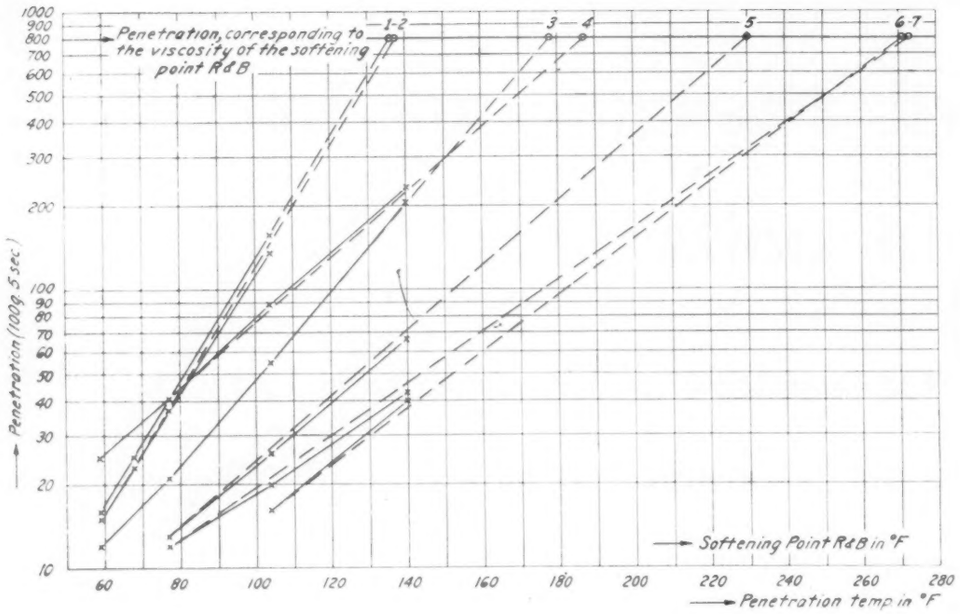


Fig. 2. Penetration curves of two normal susceptibility asphalts (1 and 2), and five (3, 4, 5, 6 and 7) low susceptibility asphalts

Traxler and Schweyer[4]) have given surveys of various methods of determining absolute viscosity, reducing the results of the different conventional methods to values for the viscosity (η) in poises. But a great number of asphalts showed phenomena such as plasticity, elasticity and thixotropy in these examinations and the conversion is only an approximation in these cases.

For asphalts behaving wholly or almost wholly as purely viscous liquids, the following relations were found by Saal.

(a) Based on penetration test:

$$\eta = \frac{5.13 \cdot 10^{8}}{\text{pen.}^{1.93}} \text{ poises}$$

(b) Viscosity at the softening point, Ring and Ball:

$$\eta = \text{about } 1.2 \cdot 10^{4} \text{ poises.}$$

From these two formulae it follows that the penetration of purely viscous asphalts at the Ring-and-Ball softening point amounts to about 800. As will be shown later, experimental data give roughly the same value for asphalt deviating from the purely viscous type as well. This does not necessarily mean that these non-Newtonian asphalts have the same viscosity at the softening point since equation (a) only holds good for the purely viscous state.

In order to be useful a classification should be based on routine determinations because measurements of absolute viscosity of asphalts by present recognized methods take up too much time. For a great many technical applications the change in consistency between 32°F. and the temperature of the softening point R & B is a highly important criterion for judging the utility of an asphalt. Since the consistency of the usual asphalt grades within this temperature range is generally indicated by the penetration and the temperature of the softening point R & B, and these tests have been universally adopted in the analysis of asphalts, we have attempted to characterize asphalts by the values found for the penetrations at different temperatures and for the softening point R & B.

We have based our deductions on the consideration that, if the temperature is not too high, the logarithm of the penetration is generally a linear function of the temperature, so that:

$$\log \text{pen.} = K_1 + a t_p \qquad (1)$$

In this equation a is characteristic of the temperature susceptibility; according as a is greater or smaller, the asphalt is called more or less sensitive to temperature change; K_1, representing the logarithm of the penetration at 0°F., is defined by the hardness and consequently, by the degree of distillation of the asphalt.

In Fig. 1 the penetration-temperature lines (= full lines) of a number of Mexican steam-refined asphalts are given. From this graph it may be seen that the penetration-temperature lines of grades of different hardness, made by a simple steam distillation of the same base material, show a slight convergence, in that the angle a and, along with this, the susceptibility, slightly decrease in the direction of the harder grades.

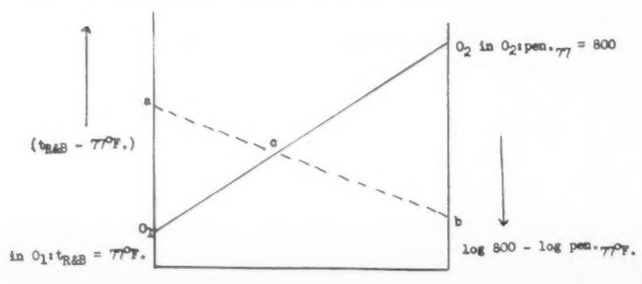
In addition, the consistency of the various Mexican asphalts at the temperature of the softening point R & B proves to be roughly expressed by a penetration value of 800. In other words, if in Fig. 1, where the penetration has been plotted against the temperature for the asphalts of different hardness, points are plotted with ordinate pen. = 800 and with abscissa the temperature of the softening point R & B, the points are approximately on a line with the values for the penetration determined at a lower temperature.

Fig. 2, which, besides to a number of normal susceptibility asphalts, refers also to some very low susceptibility asphalts, shows that for these strongly blown asphalts too the temperature of the softening point R & B corresponds to a constant value of the penetration of approximately 800. It may therefore be assumed that for most asphalts the linear relation between log pen. and temperature remains approximately valid up to temperatures near the softening point R & B. Equation (1) must therefore apply at the penetration temperature of 77°F., as well as at the temperature of the softening point R & B, so that[5])

$$\log 800 - \log \text{pen. } 77°\text{F.} = a(t_{R \text{ and } B} - 77°\text{F.}) \qquad (2)$$

Hence a plot relating (log 800 — log pen. 77°F.) as ordinate and ($t_{R \text{ and } B}$ — 77°F.) as abscissa for all the asphalts of different hardness but with the same susceptibility a gives a straight line of which the slope a at once shows the susceptibility of the materials.

When (log 800 — log pen. 77°F.) and ($t_{R \text{ and } B}$ — 77°F.) are plotted in opposite directions on two parallel scales at any given distance from each other, thus:



and the penetration (b) of an asphalt is connected with the corresponding softening point at R & B (a), this line ab crosses the line $0_1 0_2$ connecting the zero points of the temperature and penetration scales in point c, the position of which is such that

$$\frac{0_2c}{0_1c} = \frac{0_2b}{0_1a} = \frac{\log 800 - \log \text{pen. } 77°\text{F.}}{t_{R \text{ and } B} - 77°\text{F.}} = \alpha \qquad (3)$$

The position of point c on the line $0_1 0_2$, which is the same for all the asphalts of different hardness but the same susceptibility (since for these grades α is constant), is therefore characteristic for the temperature susceptibility of the asphalt. In the accompanying nomogram (Fig. 3) division marks have been placed on the line $0_1 0_2$. We have chosen the indices for marking the various degrees of susceptibility to temperature in such a manner that the line $0_1 0_2$ is divided into thirty equal parts; the fifth dividing line from the point 0_1 corresponds to the penetration index —5, the sixth the index —4, . . . the tenth the index 0, . . . and the twentieth the index +10.

The proportions of the scale of the softening-point temperatures and penetration values were chosen so that the increase of log penetration by one unit is represented by a distance ninety times as great as the distance a point moves along the scale of the softening-point temperature when the softening point rises one degree Fahrenheit.

From this it follows that the relation between the susceptibility factor α of equation 3 and the penetration index (P.I.) is given by

$$\alpha = \frac{20 - \text{P.I.}}{10 + \text{P.I.}} \cdot \frac{1}{90} \qquad (4)$$

The zero point of this "index nomogram" corresponds to the temperature susceptibility of an asphalt having a penetration of 200 at 77° F. and a softening point R & B of 104° F. The asphalts with a higher temperature susceptibility than those with penetration index zero have a negative, the asphalts with a lower susceptibility a positive index. With this nomogram a high-susceptibility asphalt with $t_{R \text{ and } B}$ = 101° F. and pen./77° F. = 146 is found to have an index = −2.0, a low-susceptibility asphalt with $t_{R \text{ and } B}$ = 185° F. and pen./77° F. = 36, an index = +4.2.

It is pointed out that, if a penetration value of 800 is taken for the consistency at the temperature of the softening point, there is in general good agreement between the susceptibility derived from the penetration curve and that from the penetration index, although neither the softening-point determination nor the penetration test are measurements of absolute viscosity. Although these determinations have theoretical disadvantages, it is believed that the rheological behavior of most asphalts is so complicated that it is not possible to determine their plasticity, elasticity and thixotropy by any rapid test with sufficient accuracy to judge their suitability for practical applications. We prefer, therefore, at least for the time being, for practical reasons to base the index figures on routine determinations.

A comparison between the various methods proposed for the classification of asphalts according to their temperature susceptibility has recently been given[6]).

When the different degrees of susceptibility have once been indexed, the lines indicating a constant index (the iso-index lines) can be drawn in a penetration-softening point diagram (Fig. 4). It follows from equation (2) that these lines converge towards the point with pen. = 800 and $t_{R \text{ and } B}$ = 77° F., while they are asymptotic to the softening-point axis.

On the strength of the differences in temperature susceptibility the asphalts can be grouped in three classes merging into one another, the boundaries of which have been chosen more or less arbitrarily.

1. The class with an index between −1 and +1, the "N type". This class comprises a great many steam- refined asphalts generally used for road making, such as the Mexican, Smackover, Hendricks and other domestic asphalts; these are therefore sometimes called "normal asphalts".

2. The class with an index below −1, the "Z type". This class is also sometimes indicated by the name of coal-tar pitch type. Like the coal-tar pitches, the asphalts of this type are characterized by their great susceptibility and, in general, also by their greater tendency to show brittleness.

3. The class with an index above +1, the "R type". In addition to having a low temperature susceptibility, these asphalts are generalljy characterized by slight tendency to show brittleness. As the majority of the blown asphalts have these characteristics, this type of asphalt is also sometimes indicated as the blown type.

It should be observed that not all steam-refined asphalts belong to the normal type, nor all blown asphalts to the R type. There are blown asphalts of the Z type and of the normal type, while, on the other hand, both the Z type and the R type are found among the steam-reduced asphalts.

II. Slide Rule for Determining Penetration Index

To facilitate the use of the index nomogram it has been made on the lines of a slide rule. With the aid of this rule, the penetration index can at once be found if the R & B softening point and one penetration of an asphalt (100 g. 5 sec.) at 59°F., 77°F., or 104°F., be known.

The construction of the slide rule is illustrated more or less diagrammatically in Figs. 5, 6, 7, and 8, wherein:

Fig. 5 is a plan view of the obverse of the slide rule and scales;

Fig. 6 is a plan view of the reverse of the slide;

Fig. 7 is a sectional view taken on line P-P′ of Fig. 5;

Fig. 8 is a plan view of the obverse of a modified slide, adapted for the Centigrade temperature scale.

Like parts are indicated by like characters throughout the drawings.

The slide rule comprises a pair of fixed parallel bars 1 and 2, attached to a rigid support or body 3 by means of fasteners 4. A slide bar 5 is mounted between the fixed bars, so as to slide longitudinally between them. It is retained by means of a transparent retaining cover

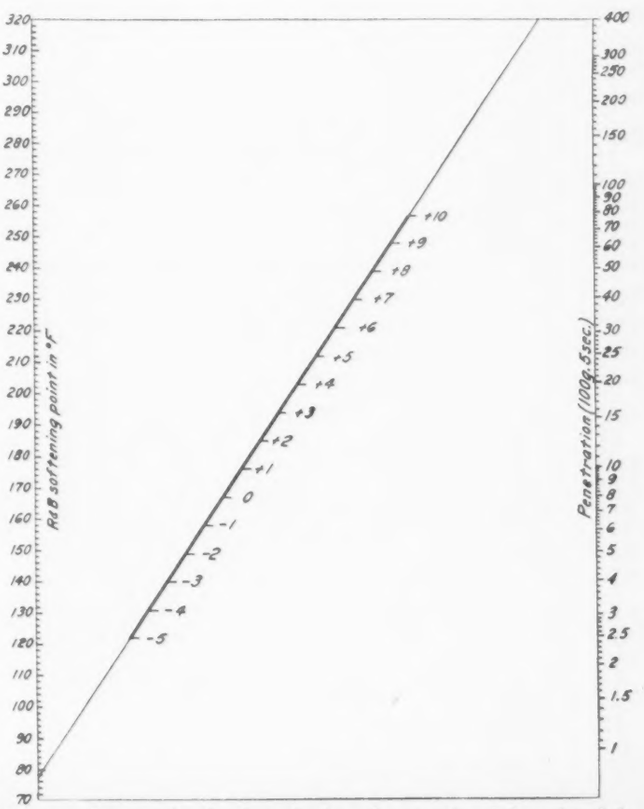


Fig. 3. Diagram for the determination of penetration index of asphalts

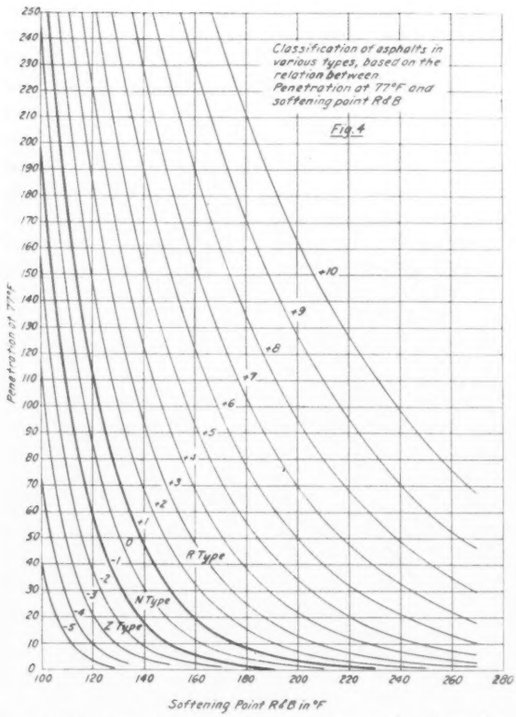

Classification of asphalts in various types, based on the relation between Penetration at 77°F and softening point R&B
Fig. 4
Penetration at 77°F
Softening Point R&B in °F
R Type
N Type
Z Type

Fig. 4. Classification of asphalts in various types, based on the relation between penetration at 77° F. and Softening Point R and B method

6, coextensive in length with the support 3 and having its edges hooked about the lateral edges of the support. The support 3 and the cover 6 are notched at the ends at 7 to permit the slide bar 5 to be grasped. A sliding clip 8, made of transparent material, and carrying a hairline 9 is mounted slidably over the cover 6.

The scales on the fixed bars 1 and 2 are designated A and C, respectively, and the scale on the front of the slide 5 is designated B, as shown in Fig. 5.

Basis for the Calibration of the Scales

Equation (2) in a general form reads:

$$\text{Log } 800 - \text{log pen}_{t_p} = \alpha(t_{R \text{ and } B} - t_p) \qquad (5)$$

in which t_p = temperature at which the penetration test is carried out and pen. t_p = penetration at temperature t_p; and since according to (4)

$$\alpha = \frac{20 - \text{P.I.}}{10 + \text{P.I.}} \cdot \frac{1}{90}$$

$$\log 800 - \log \text{pen.}t_p = \frac{20 - \text{P.I.}}{10 + \text{P.I.}} \cdot \frac{1}{90} t_{R \text{ and } B} - t_p)$$

or:

$$\log (2.903 - \log \text{pen.}t_p) - \log (t_{R \text{ and } B} - t_p) =$$

$$\log \frac{20 - \text{P.I.}}{10 + \text{P.I.}} - 1.954 \qquad (6)$$

Calibration

The penetration scale A is calibrated by the equation

$$x = \log (2.903 - \log \text{pen.})$$

where x is the abscissa of any graduation, i.e., the distance from the point of origin measured along an equidivision standard scale, values of x increasing from left to right. The origin is at the graduation pen.=80. In the case of the linear rule illustrated, the abscissae x are measured linearly along the axis of the scale; in the case of a circular rule, the abscissae and the standard scale are in angular units. As shown, the highest penetration on the scale is 250, corresponding to a value of x = —0.297 at the left end of the scale.

The softening point scale must be constructed for a particular value of t_p, and several of such scales are provided. This scale is calibrated by the equation

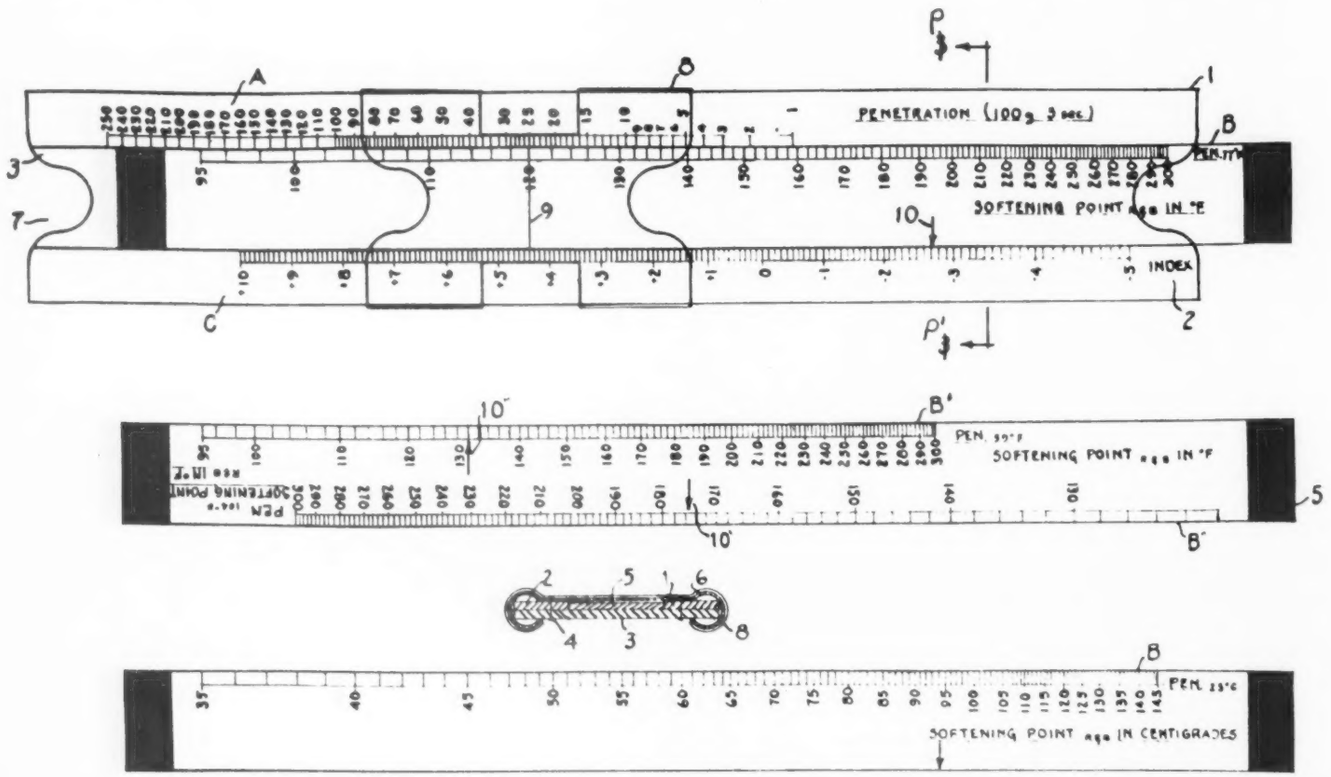
$$x_1 = \log (t_{R \text{ and } B} - t_p) \qquad (7)$$

where x_1 again is the abscissa, increasing from left to right, on a scale equicrescent with the standard scale. On the obverse side of the slide 5, as shown in the drawing, the scale B is graduated for the temperature t_p = 77°F., and softening points are indicated in degrees F.

The graduations are, therefore, according to the equation:

$$x_1 = \log (t_{R \text{ and } B} - 77) \qquad (7a)$$

As shown in the drawing, the lowest softening point on the scale is 95°F., corresponding to a value of x_1 = 1.255



Figs. 5, 6, 7, and 8. Details of slide rule for rapid determination of penetration index from Softening Point and Penetration

Lummus Heaters under construction at this time total 1,000,000,000 B.T.U.'s. Of these heaters, one has a capacity of 155,000,000 B.T.U.'s into the oil.

During the last two years, 65 Lummus Heaters have gone into service in Lummus Combination Selective Cracking Units, topping plants and lube oil refineries.

A heater is the heart of a cracking unit—and Lummus Heaters are *good* heaters . . . highly efficient . . . free from hot spots . . . fully enclosed . . . light weight in construction . . . with separately controlled heating and soaking sections.

For a complete description of the Lummus Heater see pages 201 to 220, "Composite Catalog of Oil Refinery Equipment," or write for a copy, or copies of Bulletin R-2.

THE LUMMUS COMPANY, 420 LEXINGTON AVENUE, NEW YORK, N. Y. • 411 WEST FIFTH STREET, LOS ANGELES, CAL. • BUSH HOUSE, ALDWYCH, LONDON, W. C. 2

LUMMUS

PETROLEUM REFINING PLANTS

at the left end of the scale, the origin being off the scale.

The penetration index scale C, like the scale A, may be the same for any temperature t_p, and irrespective of whether the Centigrade or Fahrenheit scale is used. It is calibrated by the equation

$$x_2 = \log \frac{20 - \text{P.I.}}{10 + \text{P.I.}} \qquad (8)$$

where x_2 again is the abscissa, increasing from left to right, on a scale equicrescent with the standard scale, with the origin at P.I. = +5.

An index mark, in the form of an arrow 10 on the slide 5, is located thereon to indicate the penetration index on the C scale corresponding to any position of the slide 5. For the Fahrenheit scale, it is located so that when the slide 5 is adjusted to cause the difference between the abscissa of a point on the A scale and the abscissa of the point on the B scale coincident therewith to be —1.954, the arrow points to +5, in accordance with equation (6). Thus when the temperature 200°F. on the softening point scale B (corresponding to x = 2.090) is set opposite the penetration 34.3 on the penetration scale A (corresponding to x = 0.136) the difference is 0.136 — 2.090, or —1.954, and the arrow should indicate the value +5 on the C scale.

For a Centigrade scale, the arrow should point to the reading +5 on the C scale when the slide 5 is adjusted to cause the difference between the values of x on coincident points on the A and B scales to be — log 50 = —1.699. Fig. 8 shows a B scale graduated for the Centigrade scale, for use with penetrations determined at 25°C. It may be used with the same A and C scales as the Fahrenheit B scale described above.

Additional B scales are provided on the reverse of the slide 5; these may be graduated either for the Centigrade temperature scale, or for the same temperature scale as the obverse, but for different values of t_p. As shown in Fig. 6 the slide 5 is provided with a scale B′ and an arrow 10′ for t_p = 59°F.; and with a scale B″ and an arrow 10″ for t_p = 104°F. When the penetrations are determined at 59°F., the slide 5 is removed from the rule, reversed and re-inserted so as to cause the scale B′ adjacent to the scale A, and the arrow 10′ to point toward the scale C. When the penetrations (100 g. 5 sec.) are determined at 104°F., the slide 5 is inverted, bringing the scale B″ contiguous to the scale A, and causing the arrow 10″ to point to the scale C.

The scales B′ and B″ are calibrated according to the principles explained above for the scale B, i.e., the scale B′ is calibrated by the equation

$$x_1 = \log (t_{R \text{ and } B} - 59) \qquad (7')$$

and the scale B″ by the equation

$$x_1 = \log (t_{R \text{ and } B} - 104) \qquad (7'')$$

The arrow 10′ is located to point to the origin on the C scale (marked +5) when the difference between coincident values of x and x_1 on the A and B′ scales is —1.954; and the arrow 10″ is likewise located so as to point to the origin on the C scale when the difference between coincident values of x and x_1 on the A and B″ scales is —1.954.

The operation of the rule is as follows: The slide 5 is inserted between the fixed bars 1 and 2 to cause the B scale corresponding to the temperature at which the penetrations are determined to be adjacent to the A scale. The penetration and softening points of the asphalt having been determined, the hairline 9 on the clip 8 is set to the penetration on the A scale. The slide 5 is then adjusted to bring the graduation indicating the softening point on the B scale under the hairline. The penetration index is read on the C scale opposite the arrow.

Example: To find the penetration index of an asphalt having a penetration of 25, measured at 77°F., and a Ring and Ball softening point of 120°F., the hairline is set to 25 on the A scale; the slide 5 is adjusted to cause the graduation 120 to appear beneath the hairline; the penetration index, read on the C scale opposite the arrow, is found to be — 2.8. This setting is illustrated in Fig. 5.

A limited number of asphalt slide rules are available on request to Shell Development Company, Emeryville, California. A patent application on the rule is pending.

Acknowledgment: The acknowledgments of the authors are due to the Directors of the Bataafsche Petroleum Maatschappij and of the Shell Development Company for permission to publish the above treatise.

* * *

REFERENCES

(1) Pfeiffer and van Doormaal, J. Inst. Petr. Tech., 1936, 22, 414.
(2) Saal, World Petr. Congress, London, 1933, Preprint 96.
(3) Saal and Koens, J. Inst. Petr. Techn., 1933, 19, 176.
(4) Traxler and Schweyer, Proc. A.S.T.M. Vol. 36, II, 1936, p. 518.
(5) Conclusion of our collaborator Klinkenberg, not published.
(6) Pfeiffer and Saal, Comparison of Various Methods for the Classification of Asphaltic Bitumens according to their Temperature Susceptibility. Paper read before the International Association for Testing Materials, International Congress, London, 1937.

A. G. Marshall, Shell Oil Co. of California, is one of the best known of the technologists in the automotive fuels and lubricants fields. He is active in the Society of Automotive Engineers, and in the Co-operative Fuel Research Committee's work on automotive and diesel fuels

J. R. MacGregor, Standard Oil Co. of California, is one of the outstanding investigators of automotive and diesel fuels, and is prominent in the work of the Society of Automotive Engineers and of the Co-operative Fuel Research Committee

Satisfactory Tractor Fuel Defined by Agriculturalists

Minimum specifications for a "generally satisfactory distillate fuel intended for use in the conventional low-compression tractor of today" have been set up at Kansas State College by E. I. Barger, assistant professor of agricultural engineering, and J. L. Gale, former graduate assistant, following extensive experiments and tests and "review of the literature."

The American Society of Agricultural Engineers published these specifications in Agricultural Engineering for February, 1938, in an article by the authors on Distillate as a Tractor Fuel.*

Gravity not below	38° A.P.I.
Initial boiling point, not above	360° F.
10% point, not above	390° F.
30% point, not above	420° F.
50% point, not above	435° F.
70% point, not above	450° F.
90% point, not above	480° F.
95% point, not above	515° F.
End point, not above	540° F.
Octane rating not less than	30
Sulfur content not over	0.20%

*Presented at a meeting of the A. S. A. E., Nov. 30, 1937, at Chicago.

It is recommended that fuels meeting the above specifications be identified by a suitable colored dye protected by law.

Gasoline Samples Pass State Test

Results of accelerated tests on 64 additional samples of regular and third grade gasoline shipped into North Dakota show a majority of gasolines with minimum induction periods exceeding four hours. The data is given in a report by the Oil Inspection Division of the North Dakota regulatory Department, Bismark, N. D., supplementing a report of last September. The report is titled "Accelerated Tests on Gasoline."

The few samples which showed a period of induction shorter than four hours invariably contained considerable gum after the test and "are apt to develop in storage gum in quantity sufficient to cause trouble in an internal combustion engine," the report states. The report identifies the manufacturers of all samples.

Test Asphalt Coated Shingles

Life of asphalt coatings have been greatly increased by use of suitable fillers, according to O. G. Strieter, research associate of the Asphalt Shingle and Roofing Institute, who has just completed an investigation of this subject at the National Bureau of Standards.

Finely ground slate, limestone, and similar mineral fillers are commonly used. Mr. Strieter explains that asphalt shingles and roll roofings are made by impregnating felt with a relatively soft asphalt and then surfacing them with a harder asphalt known as a coating asphalt. Outdoor exposure and accelerated weathering tests were employed to show the serviceability of the filled coatings.

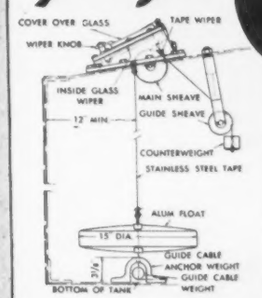
Exposition Committee Appointed

Forty members of the Science and Technology Committee for the Tenth International Petroleum Congress and Exposition have been appointed, it is announced by Dr. Gustav Egloff, chairman of the committee.

Dr. P. H. Schweitzer, Engineering Experiment Station of Pennsylvania State College, has been appointed a lieutenant commander in the U. S. Naval Reserve.

OCECO Gauges

...for LOW or HIGH PRESSURE TANKAGE...



• Oceco gauges eliminate slip-shod wasteful methods. They permit the taking of accurate tank readings, without relieving the pressure or exposing the gaugers to fumes—can be installed easily on existing or new tankage. Readings on Oceco Type 8 gauges are taken from the tank top ... on the Type 14 from the ground. Both types are of dependable Oceco design ... of non-corrosive construction ... and fitted with wipers to insure clear vision. Standard sizes are adapted for use on tanks with pressures ranging from less than an ounce to 75 pounds. Write for descriptive literature.

Specify OCECO FITTINGS your tanks deserve the best

OCECO Fittings

THE JOHNSTON & JENNINGS CO.
OCECO DIVISION
885 Addison Road • Cleveland, Ohio
Engineering and Sales Services: NEW YORK • CHICAGO • PITTSBURGH
BEAUMONT, TEXAS • TULSA, OKLAHOMA • LOS ANGELES • OAKLAND, CALIF.

Lubricating Greases; Their Manufacture and Use

By E. N. KLEMGARD

AT LAST—an ultra-modern, up-to-the-minute 872-page volume on greasemaking and its use for lubrication, by a recognized authority. New developments are given in this book for the first time in permanent published form.

This new book is the only publication available today which covers the entire grease field. The newest technology of greases is presented in detail. Hundreds of types of greases are discussed.

Some of the subjects discussed are: The Theory of Lubricating Grease and Their Manufacture; Colloidal Nature of Greases; Grease-making Materials and Equipment; E. P. and Hypoid Compounds and Lubricants; Calcium, Sodium, Aluminum, Lead, and other Types of Greases; Miscellaneous Organic and Inorganic Lubricants; and Foreign Grease Specifications both Manufacturing and Application Methods—Information obtainable from no other American source.

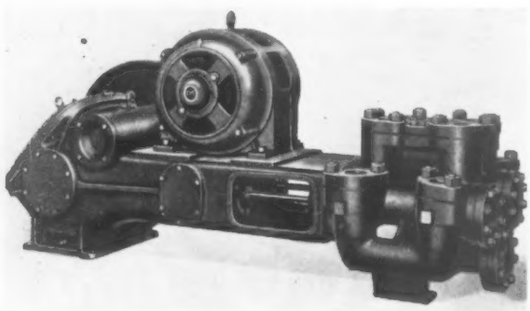
Price $15. Order It from Book Department

NATIONAL PETROLEUM NEWS
1213 W. Third St. • Cleveland, Ohio

Activities OF EQUIPMENT MANUFACTURERS

PUMPS — Fairbanks-Morse & Co. announces a new line of duplex power pumps having eight-cover, side-pot type fluid ends and enclosed, self-oiling power ends with herringbone gears and large roller bearings. These pumps are designed to pump up to 187 g.p.m. of oil, water or other free-flowing liquids at pressures up to 1000 pounds per square inch.

The design permits easier servicing and individual



valve pot covers are of course more easily removed than larger ones covering several valves. Fluid-end passageways are large and direct, offering low resistance to flow and contributing to economy of operation. Sufficient space between the two removable-gland type stuffing boxes provides easy access for inspection or servicing.

* * *

GLASS CLOTH FILTER—Filter Media Corp., Irvington-on-Hudson, New York, is announcing Fiberglas Filter Media consisting of 100% glass woven from staple length fibers. It is as resistant as chemical glass to attack from acids and withstands temperatures up to 500° F.

The cloth is made in seven different weaves and weights in widths of 26, 32, and 38 inches. Cloth may be purchased in running lengths or converted to fit the elements of any type filter.

* * *

POWER COST—How 43 companies and institutions in 29 different industries cut power costs for driving 19 different types of auxiliaries to an average of ½ cent per kilowatt hour is described by the Troy Engine & Machine Co., Troy, Pa., in its new Bulletin 101. Details of each installation are tabulated and several are illustrated. The figures are used to show that there is a definite place for the steam engine in the field of power generation. The company manufactures the Troy-Enberg steam engine.

* * *

TUBE CLEANER CATALOG—A new tube cleaner catalog is announced by The Roto Co., 145 Sussex Ave., Newark, N. J., and is available to those who have use for equipment of this type. Part 1 of the new catalog is entitled "How to Select a Tube Cleaner" and it analyzes operating conditions in various industries. Part 2 describes and illustrates the entire Roto line.

* * *

SYNTHETIC RUBBER—Vol. 1, No. 1, of a new publication, "The Neoprene Notebook," is announced by the Rubber Chemicals Division, E. I. du Pont de Nemours & Co. This publication is planned to give the engineer and the manufacturer engineering information, laboratory data, and application reports on neoprene as a convenience in considering new applications. Copies will be sent regularly to those who add their names to the company's list.

TULSA — David E. Fields, chief engineer and sales manager for the Tulsa Boiler & Machinery Co., has been elected a vice president and director of the company. The company specializes in equipment for natural gasoline plants and refineries.

* * *

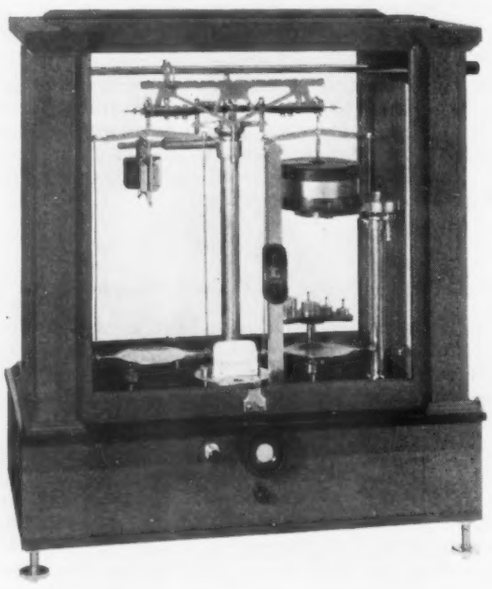
WATER TREATMENT—Refinery water conditioning is featured in the first issue of H-O-H Lighthouse, house organ of D. W. Haering & Co., with a new and improved format. February issue inaugurates a new series of articles dealing with water requirements and problems of specific industries. This publication is issued bimonthly. Copies are distributed free of charge on request to the company, 3408 Monroe St., Chicago.

* * *

HIGH-STRENGTH ALLOYS—Complete information on the four Hastelloy alloys is contained in a new 36-page booklet, "Hastelloy—High-Strength Alloys for Corrosion Resistance", just published by Haynes Stellite Co., Kokomo, Ind. Chemical and physical properties, available forms, methods of fabrication, machining and welding, and typical successful applications are covered in this publication.

* * *

200-GRAM BALANCE—A new weightless "Drum Balance" with a sensitivity of 1/20 mgr. with full load is announced by Eimer & Amend, Third Ave., 18th to 19th St., New York. No loose weights are required from



0.1 mgr. to 10 grams and a graduated chain post may be read without a vernier. A drum arrangement automatically places one-gram weights on the balance up to 9 grams.

* * *

PUMP CONTRACT—Combined capacity of three cargo discharge pumps supplied by Worthington Pump and Machinery Corp. for a second 18,500-ton tanker now under construction at the Sun shipyards, Chester, Pa., is 630,000 gallons per hour, said to be about three times the usual rate. The three 300-hp. pumps will be of the centrifugal, deep-well

type, driven by 2300-volt motors. Worthington also has the contract for main and auxiliary circulating pumps with capacity totaling 522,000 gallons per hour.

* * *

CONTROLLER—A new control instrument with wide throttling range and automatic reset that "provides for point-control" is now being built by The Bristol Co., Waterbury, Conn. Adaptable to control of temperature, pressure, vacuum, flow, and liquid level, the instrument is especially suited, for example, in temperature control to processes where there are differences in respect to the time required for a change of temperature in the system, when the cooling or heating medium is added through the control valve. Details are contained in bulletin 503, obtainable on request.

* * *

ELECTRICAL MAINTENANCE—"Electric Drive Selector and Hints on Maintenance" is the title of a 12-page publication recently prepared by Westinghouse Electric & Mfg. Co., East Pittsburgh. Arranged particularly for the non-technical man or for the plant maintenance man, the pamphlet describes and illustrates the requirements which must be met in selecting a motor, control and circuit protection. A section of the pamphlet is devoted to maintenance.

Refinery Fuel Efficiency Makes New Record in 1936

A new record in fuel efficiency at petroleum refineries was made in 1936, it is revealed in Bureau of Mines Report of Investigations 3367, just published. The 597,000 B.t.u. of heat required to refine a barrel of crude oil in 1936 compares with an average of 615,000 B.t.u. in 1935.

The principal factor in the indicated gain in fuel efficiency was an 11% increase in crude runs, it is indicated, although there is little doubt that economies were made at some plants through the further replacement of obsolete shell stills by pipe or tube stills.

On the other hand the operating capacity of pipe stills increased but five per cent in 1936 and it might be logical to suppose that whatever economies were effected by the addition of new pipe stills and combination units were more than offset by the additional heat requirements of the standby stills brought back into service. Without doubt the year witnessed a further expansion in the use of the heat-exchange principle.

Consumption of oil as refinery fuel continued its gradual decline in 1936 when 30,454,000 barrels were burned, compared with 31,497,000 barrels in 1935 and 51,544,000 barrels in 1929, the year of peak use. Oil supplied 28.6% of the total heat units generated at refineries in 1936 compared with 31.8% in 1935. The decline reflected a further stiffening of prices.

Although the polymerization process is expected ultimately to claim most refinery gas, there was little evidence of this in 1936. Consumption of still gas as refinery fuel increased 15%, or from 183,383,000,000 cubic feet in 1935 to 210,689,000,000 cubic feet in 1936. The percentage of the total B.t.u. supplied in 1936 was 46.2% compared with 43.2% in 1935 and only 11.2% in 1926.

Use of acid sludge declined in 1936 following an increase in 1935, possibly in response to increased solvent extraction in lubricating oil manufacture. B.t.u. percentage was 3.5 as compared with 3.9 in 1935. Coal consumption as refinery fuel was up slightly to 5.4%, which is far below the ratio of 10 years ago.

Natural gas continued to increase as refinery fuel, following predictions of several years ago. Consumption was 93,183,000,000 cubic feet in 1936 compared with 80,175,000,000 cubic feet in 1935. Natural gas supplied 15.3% of total heat in 1936, the highest ratio since the 16.7% in 1930.

Consumption of petroleum coke as refinery fuel increased but the 1936 consumption of 123,000 short tons was only 9% of refinery output. Purchased steam rose slightly to 5,897,000,000 pounds in 1936, purchased electricity, which has gained since 1929 (except 1932), reached a total of 1,191,023,000 kilowatt-hours in 1936 compared with 1,071,841,000 kilowatt-hours in 1935.

Motor Fuel Purchases of Oil Corps Include More 100-Octane Fuel

WASHINGTON, Feb. 21.—Increase in the percentage of 100-octane motor fuel for Army airplanes in the total volume of purchases was noted in awards of contracts for the first half-year of 1938, recently announced by the Army Air Corps.

Approximately 7,264,000 gallons of 100-octane fuel were included in the several contracts but total motor fuel gallonage could not be ascertained and corps officials would not estimate percentage. Total cost of all types of gasoline in all contracts was $1,818,786.37.

A decline in the price of iso-octane fuel is becoming more noticeable each time bids are opened, it was said at Air Corps headquarters. Continued decrease is predicted. Eventual 100% switch over to 100-octane fuel will be made by the corps, Air Corps officers have said on previous occasions, but the change is expected to be gradual.

Shell companies lead in dollar volume in motor fuel contracts, three companies holding contracts for $1,360,477. Other companies with contracts are Standard Oil Co. of New Jersey ($197,309), Humble Oil & Refining Co. ($143,575), Standard Oil Co. (Kentucky), Phillips Petroleum Co., Standard Oil Co. of California, Socony-Vacuum Oil Co., Standard Oil Co. (Ohio), Standard Oil Co. (Ind.), Standard Oil Co. (Texas), and Richfield Oil Corp.

INDEX TO ADVERTISERS

Refining Technology Section

(*See also page 72*)

This index is published as a convenience to the reader. Every care is taken to make it accurate, but National Petroleum News assumes no responsibility for errors or omissions

Alco Products Div. of American Locomotive Co. ..

Badger & Sons Co., E. B. .....

Chicago Bridge & Iron Co. .....
Crane Co. .....

Dresser Engineering Co. .....
duPont de Nemours & Co., E. I. .....

Edeleanu Co., Ltd. .....

Gasoline Products Co. R-76
Gray Processes Corp. .....

Hanlon-Buchanan, Inc. R-71

Johnston & Jennings Co. R-85

Kellogg Co., M. W. R-73
Koppers Co. R-68-69

Lummus Co. R-83

Petroleum Rectifying Co. of Calif. R-66
Polymerization Process Corp. .....

Shand & Jurs Co. .....
Sharples Specialty Co. R-79
Sun Shipbuilding & Dry Dock Co. .....

Texaco Development Corp. .....

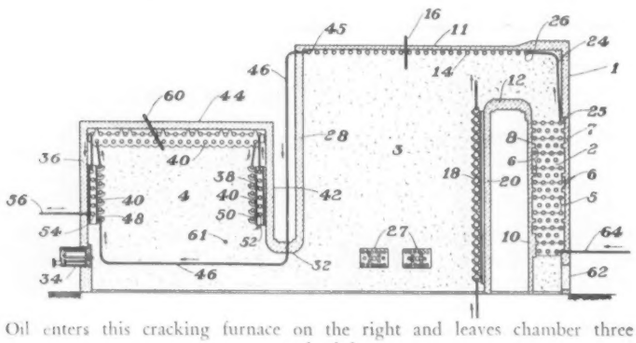
Universal Oil Products Co. 35

Patent Literature of Today

Cracking furnace. No. 2 103 719, *issued Dec.* 28, 1937; *filed Dec.* 7, 1934; *A. E. Harnsberger, assignor to The Pure Oil Co.; one drawing; 3 claims.*

An oil heater is built with three chambers. A bank of tubes in one chamber is in the direct path of combustion gases, another bank is arranged adjacent the roof of the intermediate chamber, and several rows of tubes are disposed adjacent the roof and side walls of the third chamber. The first and intermediate chambers are separated by an upwardly extending bridge wall with a gas passageway above the wall. The intermediate and third chambers are separated by a downwardly extending bridge wall with a gas passageway below the wall. Heating means are located in the third chamber and intermediate chamber in such a manner as to impart mainly radiant heat.

Oil is passed through a series bank of tubes in a convection zone contacted by combustion gases which have been cooled by previous radiant heat transfer to other banks of tubes. The preheated oil then passes through a bank of tubes in a zone maintained at 1500-1600° F and heated largely by radiant heat of high temperature combustion gases. Oil leaves this bank of tubes at a cracking temperature of 900° F and passes through a second radiant heat tube bank where oil at or near the cracking temperature is raised to 970° F long enough to crack the oil. Gas temperature in this tube bank is considerably lower (1200-1250° F) than in the first radiant heat chamber. The arrangement is said to result in cracking with unusually low carbon deposition and an astonishingly low number of tube failures.



Oil enters this cracking furnace on the right and leaves chamber three at the left

* * *

Cracking furnace. No. 2 105 500, *issued Jan.* 18, 1938; *filed April* 25, 1935; *R. M. Parsons, assignor to The Ralph M. Parsons Co.; 3 diagrams; 11 claims.*

A furnace is provided with a vertically elongated combustion chamber having a bank of radiant heat tubes located centrally and dividing the chamber vertically into two sections. Rows of burners are located on each side of the radiant heat tubes. Combustion gases pass over the radiant heat tubes and into a convection chamber located in line with the normal flow of gases. It is of smaller cross-section than the combustion chamber so that the gases pass through at an increased velocity. The burners are mounted in or near the floor in a position to heat the side walls to radiance so that the radiant heat is reradiated onto the tubes.

A feature is provision of a member in alignment with the radiant heat tubes, which is stream lined in the direction of gas flow so as to direct the gases into the convection chamber with a minimum of turbulence and cause a uniform distribution of gases. Another feature is provision of air passages on the outside of the furnace walls arranged for downward passage of air for combustion in the burners.

* * *

Distilling lubricating oil. No. 2 103 898, *issued Dec.* 28, 1937; *filed Apr.* 11, 1932; *F. G. Fellows, assignor to Continental Oil Co.; 4 drawings; one claim.*

Wax-bearing oil is heated to distillation temperature and flashed to vapors and unvaporized oil in a fractionating zone. Unvaporized oil is withdrawn from the process. Vapors are fractionally condensed and reflux condensate containing amorphous wax is withdrawn and a portion heated to wax-cracking and vaporizing temperatures so that a portion of the amorphous wax is converted into vapors containing wax which will form crystals upon condensation and have pressing qualities.

Heated amorphous wax bearing condensate is separated into vapors and unvaporized oil in a second fractionating zone. Unvaporized oil is withdrawn from the process and the vapors condensed. Condensate containing pressable wax is introduced into the first fractionating zone as an intermediate reflux. Reflux condensate containing pressable wax is withdrawn from the fractionating zone.

Objects of the invention include provision of economical and efficient process for treating a slop cut to convert a large portion into pressable wax and improvement in quality of cylinder stock obtained from a lubricating oil distillation unit.

* * *

Non-gumming motor fuel. No. 2 103 927, *issued Dec.* 28, 1937; *filed April* 23, 1935; *L. S. Bale, assignor to Standard Oil Co. (Ohio); no drawing; 4 claims.*

Gum-solventicity in gasoline is raised with about 0.2-1.6% of mineral oil of 18-35 gravity devoid of lubricating viscosity for internal combustion engine temperature and about 0.02-0.4% of a halogenated aromatic compound (chloralkyl diphenyl oxide compound, ortho-dichlorbenzene, or 4 chloro 4′ ethyl diphenyl oxide).

* * *

Fractionation. No. 2 104 310, *issued Jan.* 4, 1938; *filed July* 14, 1934; *P. J. Roelfsema, assignor to Shell Development Co.; 3 drawings; 2 claims.*

In a continuous process of fractional distillation, a vaporized hydrocarbon mixture and a reflux formed in a condensing zone are counterflowed. A constant pressure is automatically maintained by regulating the rate of indirect cooling in the condensing zone solely as a function of the pressure in the fractionating zone. Flow of fractionating material is automatically regulated as an inverse function of the rate of flow of the condensate formed in the condensing zone. Constant reflux ratio is automatically maintained as well as heat input to the fractionating zone which is regulated as an inverse function of the temperature at the top of the fractionating tower.

Vaporized top product is condensed under the pressure of the distillation zone and accumulated in a pool of restricted cross section and substantial depth. One portion is returned to the top of the distillation zone under a hydraulic head of the pool. Another portion is transferred under this hydraulic head to an accumulating zone maintained under distillation pressure by automatically regulating the rate of condensation of the vaporized top product as a direct function of this pressure. This varies the depth of the condensate pool within a narrow range. These variations are counteracted by regulating the rate of condensate transfer to the accumulating zone. The rate of reflux is kept constant irrespective of the variations in the depth of the pool. The rate of feed to the distillation zone is regulated inversely to variations in the depth of the condensate pool.

It is believed that the prior art has failed to make a proper distinction between the following three main variables: properties of product, yield as determined by the reflux ratio, and load on the column as determined by the amounts of reflux and top products.

Fuel Oil is ECONOMIC Use of Petroleum

Limiting, By Taxation, Consumption Of Oil To So-Called "Superior" Products Would Restrict Nation's Economic Development, A.I.M.E. Told

By **V. B. GUTHRIE**
Managing Editor

NEW YORK, Feb. 18—THERE are no current uneconomic uses for petroleum products, John Gill, of the Atlantic Refining Co., Philadelphia, told the session on economics of the Petroleum Division at the annual meeting here of the American Institute of Mining and Metallurgical Engineers, in presenting a paper prepared by himself and E. T. Knight, of the same company. The title of the paper was, "What Are the Uneconomic Uses of Petroleum?"

"This conclusion can be supported by detailed technical analysis," he stated; "but it finds its broadest and firmest foundations in those economic analyses which comprehend all of the important inter-related factors of the economy.

"A product and the process of its production are to be viewed as economic when they elevate the total material welfare by a greater measure than would be effected by the expenditure of the same amount of energy in some other direction."

Gill's remarks were directed in the main at the charges that the use of fuel oil under steam boilers is an uneconomic or "inferior" use of petroleum and have added interest because of the present efforts of the coal industry to place a tax of a cent a gallon on fuel oil; but he also answered the charge often made that the burning of natural gas to make carbon black is an economic use of petroleum.

The proposed tax on fuel oil was called by the speaker in reality an attack on our standard of living, since this petroleum product, even with a tax, would have to be sold in competition with other fuels and the loss to the oil industry would have to be made up by a higher price to the public on the principal and non-competitive product of the industry, its gasoline.

Gill presented statistics to show that the material welfare of this country grew more rapidly during the past 25 years than in any other period of equal length. Few persons would deny, he said, that this spectacular growth had been made possible, in large measure, by the development of automotive transportation.

"Without abundant and cheap motor fuel, the spectacular growth of motor transport would not have been possible," he stated. "Support for this statement can be found in a comparison of the development of the automobile in this country, where motor fuel has been cheap, with the development of the use of automotive facilities in those countries abroad where the cost of fuel has been high.

"To the observer it appears that the growth of the material welfare of many countries has paralleled the rapid growth of the motor vehicle. The role played by the 'inferior' products in this superb development has been overlooked or ignored by the critics. To see this matter clearly it may be helpful to review a phase of the evolution of the business."

Gill went on to point out that the production of the vast quantities of motor fuel necessary was accompanied necessarily by the production of very considerable volumes of gas oils and heavy fuel oils which had to be marketed to clear the way for the production of still larger quantities of gasoline.

"There was no other commercial way," he stated, going on to point out that higher and higher yields of the most desirable products were obtained by the industry as its knowledge grew in the nature of its raw material and as the suppliers of refinery equipment progressed in the development of materials of construction and in the design of ingenious facilities for the more effective processing of crude." But even while the proportions of the so-called 'inferior' products declined, the aboslute production of them increased," he said.

"However," he went on, "now speculate upon the impediments to the development of this vast industry, which would be set up by the taxation of fuel sufficiently severe to withhold large quantities of crude petroleum from the use of the present generation for the possible use of future generations."

"The estimation of the harm to our economy resulting from such taxation can be approximated only in the broadest, general terms, as by comparisons of the relative growth of the economies of whole countries," Gill stated in his address. "The tax would have restricted the use of gasoline, hence of the automobile and related industries and thus of a large segment of the economy.

"There was a time not so long ago when the price of gasoline would have been raised by three cents a gallon for every cent of tax upon fuel oil." He was referring to the period around 1909, when the yield of gas and fuel oils from crude was 33.6 per cent, and the yield of gasoline 10.7 per cent, the ratio being 3.2 to 1.

"Fuel oil is produced of necessity when gasoline is produced," the speaker continued. "It must be sold in competition with other fuels and priced to clear the market of it. Strenuous efforts have been made to have it carry as large a share of the cost of producing and refining crude oil as possible. A study of prices indicates that, in a very substantial way, fuel oil has always brought the highest realizations compatible with its timely disposal. Support of this statement is found in the occasional storage of oil awaiting better prices.

"It must be clear then, that any 'conservation' of crude effected by a tax on fuel oil would have resulted primarily from restricted use of gasoline. Gasoline users would have to pay the tax without any benefit whatever accruing therefrom."

Gill told the economics session that an equally serious matter in regard to a tax on fuel oil was the fact that,

Petroleum Division New Officers

NEW YORK, Feb. 17.—G. B. Corliss, superintendent of Gulf Coast production for the Humble Oil & Refining Co., was elected chairman of the Petroleum Division of the A. I. M. E. at the annual meeting here this week. He replaces M. Albertson, of the Shell Oil Co. of California.

Benjamin C. Craft, associate professor of petroleum engineering, Louisiana State University, is the new secretary and treasurer of the division, taking the place of E. A. Stevenson, of the University of Kansas.

National Economic Welfare and Its Relation to Concentration and Use of Automobiles and the Price of Motor Fuel

	National Income (Produced) Per Capita	Population Per Motor Vehicle 1932	Price of Gasoline End of Year 1932, cents per Gal.	Population Per Motor Vehicle 1936	Price of Gasoline July, 1937, cents per Gal.
United States	$384	5.0	17.6	4.5	19.3
Canada	307	9.3	22.5	9.0	21.4
United Kingdom	253	25.0	22.2	21.0	33.6
New Zealand	207	8.0	29.5	7.0	33.0
Australia	178	12.0	22.8	10.0	30.0
France	193	22.0	28.0	19.0	34.5
Germany	170	101.0	33.3	49.0	59.6
Denmark	165	30.0	20.8	27.0	25.0

when uneconomic punitive taxation is levied, there is started a train of damaging sequences to which no visible end can be seen. Particularly was this true at present, he said, when such a tax would inevitably be bound up with the attempt of economic planners to arbitrarily control the nation's processes for meeting out economic needs.

"While some of the conservationists might be gratified by any reduction in the consumption of crude oil, overlooking, or ignoring, the enormous benefits to the general economy which have resulted from the rapid development of this resource, each economic planner or manipulator with some special interest to serve would 'fix' the economy to suit his own ideas regardless of the losses to the general economy, with which he appears to be little concerned," he stated.

Gill went on to say that the competition oil has offered other fuels has in itself conferred a benefit on the nation, through improving the operating efficiency of the coal industry particularly. In the 12 years to 1919, he said, the maximum quantity of fuel oil made available for competition with solid mineral fuels did not exceed the equivalent of 7.5 per cent of the latter. During this time the operating efficiency of the coal industry, as measured by the output per employe mining bituminous coal remained nearly stationary.

Subsequent to 1920, the quantity of fuel oil placed on the market rose with the very rapidly increasing demand for motor fuel and, with respect to both the domestic and industrial fuel markets, loomed as a competitor to be reckoned with, Gill stated. "It was during the latter period that the coal industry appears to have made its greatest progress technologically," he said, "In the 12 years between 1920 and 1931, the output of soft coal per employe rose 32 per cent, from 4 tons to 5.3 tons per man per day."

Next to heavy fuel oil, no other product or process has been the subject of as much adverse criticism as that by which carbon black is produced from natural gas, Gill stated. Gas used for this purpose has yielded a lower realization than that employed for any other purpose, he said, this fact leading to condemnation of the production of carbon black by the incomplete combustion of natural gas.

Here, he said, critics have not seen the practical impossibility of carrying gas to distant markets because heavy investments in pipelines could not be justified in the face of uncertainty regarding the extent of reserves. If these critics had looked to the value to the public of carbon black, they would have discovered, Gill said, that its chief function as a reinforcing agent in the treads of automobile tires which enables tires to be made that last from two and a half to three times as long as tires made with the next most suitable material.

He said that, between 1922 and 1936, inclusive, 2,745,540 million cubic feet of natural gas were consumed in carbon black manufacture valued actually at $65,000,000 but in this discussion assumed to be worth $232,820,000 when employed for domestic purposes. During this period, the wholesale value of the U. S. production of pneumatic casings and other tires totalled $7,397,910,000. This value, Gill said, had been enhanced two and a half to three times by carbon black.

"It may be stated conservatively," he stated, "that, over the last 15 years, the saving to the public in the form of longer-life tires has been upward of 40 times as much as the value of natural gas employed for the production of all carbon black manufactured in this country for whatever purpose, even when valued at the well at the average price realized for natural gas from the same source put into the domestic market."

Referring briefly to petroleum exports in the course of his address, Gill stated that some sincere conservationists deplore exports of these commodities, pointing out that some day our country may be in dire need of the equivalent of the oil exported. He said that during the past 37 years, the value of our petroleum exports has exceeded $9,000,000,000.

"Here, again, the lack of complete analysis tends to cause the essential facts to be overlooked," he stated. "These overseas transactions do not represent a trading of our heritage for a mess of foreign pottage. Economically, the export of oil can be fully justified on the ground that it enabled us to purchase from abroad vast quantities of products not obtainable in our own country which were absolutely essential to our comfort and development. In a general way they represented intelligently directed economic efforts, most likely to advance our standard of living."

On the matter of petroleum reserves for the future, Gill said the country could not afford to retard its peacetime economic development by restricting the use of products which have proved themselves essential to that development.

"The problem of maintaining the tempo of development cannot be solved by uneconomic restraints on consumption of products exemplified by domestic heating oils but by preparation for the production of supplementary supplies of gaseous and liquid hydrocarbons anent the day when the depletion of the petroleum resource naturally restricts the consumption of petroleum products."

The point was made by the author in presenting these statistics that the relationship cannot be shown satisfactorily in such selected data because of such complex factors as age of the country, area per capita, concentration of population in cities, highway development, extent and development of natural resources and so on.

Doherty Awarded Lucas Medal

NEW YORK, Feb. 17.—Henry L. Doherty, president of Cities Service Co., was the 1938 recipient of the Anthony F. Lucas medal, awarded at the annual dinner of the American Institute of Mining and Metallurgical Engineers last night at the Waldorf Astoria, for "distinguished achievement in improving the technique and practice of finding or producing petroleum."

He is the second recipient of this medal, which last year was awarded to J. Edgar Pew, vice president of the Sun Oil Co. Captain Lucas, for whom the medal was founded, was one of the pioneers of the oil industry and one of the first petroleum engineers.

Mr. Doherty, who attended the dinner in a wheel chair because of illness, received the medal "for his recognition of the importance of the solubility of natural gas in crude oil and his early advocation of scientific production of oil fields from the standpoint of energy conservation." He developed several years ago the plan of unit operation of oil pools, with the maintenance of reservoir pressure, to secure the largest ultimate recovery from a pool.

The Lucas medalist is chosen each year by a committee of 16 members, including the presidents of the A. I. M. E, the American Petroleum Institute, the American Association of Petroleum Geologists and the director of the U. S. Bureau of Mines. John R. Suman, of the Humble Oil & Refining Co., was chairman of the 1938 committee and introduced Mr. Doherty at the dinner.

Iso octane is a new aviation fuel that gives to airplanes speed and range and climbing power never known before

Fuel two fast airplanes, one with iso octane blend and the other with aviation gasoline, and send them aloft to show their mettle

It's like an eagle and a crow The plane without iso octane is outclassed

Iso octane is made by the U. O. P. catalytic selective polymerization and iso octane processes

It is made from the gases produced while the Dubbs process is converting oil into Dubbscracked gasoline

The benefits of these processes, as well as the Dubbscracking process are yours if you want them

Universal Oil Products Co
Chicago, Illinois

Dubbs Cracking Process
Owner and Licensor

Consumer Demand Coming Factor In Proration Formula

NEW YORK, Feb. 17

The future proration as a method for controlling the rate of production of oil fields in this country occupied one session of the annual meeting here of the Petroleum Division of the American Institute of Mining and Metallurgical Engineers, in connection with the A.I.M.E. convention.

Many in the oil industry look upon proration at just what it is today, a method for preventing the surplus production of crude over any considerable period. However, the economists, particularly those outside the oil industry, regard proration as pioneering by a large and important industry in political and economic fields; as a means of setting up control of industrial operations in which stabilization is to be secured through other means than the functioning of price alone.

Needless to say, these economists regard such an experiment as most important because of the prevailing economic views today. They do not believe the oil industry could drop proration if it wanted to; they are most interested, however, in its future development and how far away that development will keep from the socialization of the oil industry.

They recognize the shortcomings of proration, the fact that it sets up "maladjustments" in other branches of the oil industry than production and study if and how these maladjustments can be worked out without too much emphasis, or interference, from political quarters brought about through the pressure on such quarters that may be brought by groups within the oil industry, or outside.

There were two speakers on the program at this session of the Petroleum Division on proration subjects. One was Joseph E. Pogue, vice president of the Chase National Bank, New York, with a wide reputation over many years as a petroleum economist. He brought out that proration cannot be accepted as a static force within the oil industry, that it must change to meet new conditions and he presented two practical and immediate problems arising under proration as practiced today.

The first is that, under the present method for establishing allowables, the individual well as the ultimate unit is overemphasized, with the result that the drilling of unnecessary wells is stimulated. The second is a maladjustment in the internal balance of the industry created through buyers' indicated crude requirements being taken as market demand in determining production allowables, in place of the calculated needs of actual consumers.

The second speaker on the subject of proration—though an outsider would not gather any connection from the title of his address—was Alexander Sachs, economist with the Lehman Corp., who was an industrial planner for the government during the NRA regime. He spoke on, "Administrative Problems in Cooperative Stabilization of Economic Domains."

This speaker suggested a means to bring about the future functioning of proration in a broader sense and with less likelihood of undue emphasis from political quarters, the adoption into the present proration machinery of administrative agencies on the order of England's so-called public boards.

These would be technical and non-political divisions of the present proration agencies, which are the regulatory agencies in the oil producing states and the Interstate Compact Commission. These divisions would deal with technical and political problems of the oil industry, from a long range point of view. Their members would be well paid, to secure good talent, and their selection made by some such plan as is used in England, this speaker said, by which the interests of management, labor, the public and investors are recognized, the selections, however, being free from political control. In England the tenure of office of such boards is rotating and they function independently of the political party in power. To Sachs this functioning method for an industry represents the means for a compromise in this country between centralization and political control and the extreme individualism of earlier periods in business. The interest of the oil industry should center particularly in the second of the two immediate problems proration is facing as presented in Pogue's address. Present gasoline stocks, which are regarded as to heavy for the oil industry at this season of the year, are the result of production allowables being based on crude buyers' estimated needs rather than on something more nearly akin to market demand. On this subject Pogue stated:

"In the use of 'market demand' as a yardstick for determining production allowables, a maladjustment in the internal balance of the industry is apt to be created if evidence of demand is taken to be the buyers' indicated requirements instead of the calculated needs of the consumer.

"At times, owing to speculative movements, or to lagging adjustments to changing economic conditions, or even to undue rigidities in accommodating refinery-yield factors to seasonal changes, buyers of crude oil incline to reflect a demand that gets out of phase with the needs of the consumer markets. In such instances, products' stocks become maladjusted and price disparities between crude oil and products tend to develop, creating a disproportionate division of revenue as between the different branches of the industry.

"When this dislocation is carried too far, political forces may be engendered hostile to proration and inimical to its progress. The remedy for this condition is the substitution of 'consumer demand' for 'buyers' demand' in determining 'market demand.'

"There seems to be some appreciation of the importance of this distinction in the gradual abandonment of buyers' nominations as evidences of demand, in favor of the type of evidence supplied by the U. S. Bureau of Mines in its advisery production quotas, which are based upon consumer demand; but the principle doubtless deserves further incorporation into operating procedures."

With regard to the present functioning of proration as tending to stimulate the drilling of unnecessary wells, Pogue brought out the following in his paper.

"This consideration could be improved if the lease acreage instead of the number of wells were made the divisor in the allocation formulas adopted; and still greater progress could be obtained in proportion to the degree with which the allocations were made to conform to the volume of oil in place under each lease.

"So long as the lease allowable can be increased by drilling wells in excess of the number required to drain the property at lowest cost, unnecessary wells will be drilled, per-well allowables will narrow unduly, costs will be enhanced and a source of disequilibrium will be introduced into the system that might carry on to critical and disruptive limits.

"It is in this area that the practice of proration is mechanically the most imperfect and here consequently is wide room for improvement. Increasing attention by the industry and the regulatory bodies is coming to be devoted to these elements."

In the discussion Pogue stated that the drilling of unnecessary wells is the most serious flaw in the proration system and that it might reach a period

It's a HOG for PUNISHMENT

IF YOU want a cargo hose that can take all the abuse on the docks for month after month after month, you want Goodyear Style M Oil Suction and Discharge Hose. This hard-boiled hose has a rhinoceros-tough cover compounded to resist the effects of salt water, sun and weather—armored underneath with heavy fabric to provide extra protection against hard knocks. And beneath that wear-defying carcass you get a double wire spiraled reenforcement that prevents expansion under working pressures as high as 200 pounds; that gives the hose great strength with easy-to-handle flexibility.

Get the facts

Before ordering cargo hose again let the G.T.M.—Goodyear Technical Man—give you performance facts on Goodyear Style M Hose that prove its greater economy. It can be supplied with high pressure nipples built integral if desired. For lower working pressures the G.T.M. recommends Goodyear Style W Hose of slightly lighter construction; for sea loading Style S (armored). To consult the G.T.M. write Goodyear, Akron, Ohio, or Los Angeles, California—or phone the nearest Goodyear Mechanical Rubber Goods Distributor.

BELTS
MOLDED GOODS
HOSE
PACKING
Made by the makers of Goodyear Tires

THE GREATEST NAME IN RUBBER
GOODYEAR

of serious congestion unless some means is found to balance drilling with the need for crude oil supply and avoid a great redundancy in new wells. Another speaker said wide well spacing was not only a conservation problem but also a business and financing problem as far as operators were concerned.

In presenting his address entitled, "An Equilibrium Theory of Proration," Pogue said that the true functioning of proration was to seek an equilibrium level between supply and demand; "that is, a level responsive to cost, buying power and the capital requirements of the industry." Under this concept he presented what he termed "key" questions with regard to the future development of proration as follows:

"1. Does proration contribute to the efficient utilization of reservoir energy in the production of crude oil? And is this contribution progressing in the direction of neutralizing the effects of the Rule of Capture through the furtherance of collective action in the single oil pool?

"2. Does proration induce a balancing of supply and demand, without in so doing creating other maladjustments that will tend to upset this balance? And in bringing about such a balance, does proration leave price free to express natural values and perform properly its functional duties?

"3. Does proration operate to preserve capital equilibrium, so that the proper amount of capital is drawn into the business, but redundant capitilization is avoided?

"4. Is proration making adequate advancement toward bringing about a suitable relation between demand and 'potential' production? Is not much greater progress needed in changing methods of administration so as to retard the drilling of unnecessary wells? Is proper headway being made toward the institution of allocation formulas and well-spacing patterns designed to preserve equilibrium both in the single reservoir and in the economic structure?

"5. Does proration promote sufficient flexibility in trade channels to permit their orderly adjustment to changing requirements, with due regard to relative costs and size of reserves? And are its allocation procedures such as to stimulate orderly development and retard improvident operations?

"6. Is proration approaching adequately the problems lying in the sphere of coordination between the oil-producing states? Is the legal instrument devised for this purpose, the Interstate Oil Compact, meeting its responsibilities with sufficient energy and skill to safeguard this field of operation from attachment by a higher central authority?

"The mere formulation of these questions may illustrate how the criterion of equilibrium may serve to focus attention upon the development that proration has already attained and the nature and complexity of the problems it still faces. A great American industry is engaged in constructing a new operating form and the outcome of this effort will be of the broadest interest."

At the same session of the Petroleum Division of the A.I.M.E., Norman D. FitzGerald, of the petroleum economics department, of Chase National Bank, presented a paper on "The Market for Oil Securities from 1932 to 1937." Sidney A. Swensrud, assistant to the president, Standard Oil Co. of Ohio, presided at the session.

* * *

Extensive Drilling of 1937 Brought in Many New Pools

NEW YORK, Feb. 17

The results of the extensive drilling campaigns conducted over the country in 1937 are to be seen in the reports from various areas presented by petroleum geologists and engineers at the Symposium on Oil Production which occupied both sessions Feb. 16 of the Petroleum Division of the American Institute of Mining and Metallurgical Engineers.

B. B. Zavoico, of the geological department of Chase National Bank, was chairman of the morning session devoted on the program to domestic production and J. Terry Duce, chief geologist for The Texas Co., chairman of the afternoon session on foreign production. Following are highlights from some of the reports on domestic fields

California — Three new fields were discovered in the San Joaquin Valley in 1937, as well as many extensions of proven fields and the discovery of deeper production.

Withdrawals from reserves in this state in 1937 were estimated at about 238,000,000 barrels and it is estimated that additions to reserves by new discoveries during the year will be almost twice that amount. Since 1928 each year's withdrawals have been greater than additions to reserves but 1937 established a new trend, which may be continued over a prolonged period because of increased geophysical prospecting.

The discovery well of the Union Oil Co. at Rio Bravo, producing from 11,302 feet in depth inaugurates an era of deep drilling and opens possibilities for securing deeper production in many of the older fields in the center of the Los Angeles Basin, the engineers believe.

North Texas — Estimate of 20,000 acres made as to productive area of

Consumption of Petroleum Products and Related Fuels, Principal Nations, 1937 and 1936 Total

This tabulation was presented in a paper on World Consumption, prepared by V. R. Garfias, R. V. Whitsel and J. W. Ristori, of Cities Service Co., before the recent meeting in New York of the Petroleum Division of the A. I. M. E.

(*Figures in Thousands of Barrels*)

	1937						
	Motor Fuel	Kerosine	Gas and Fuel Oil	Lubricants	Miscellaneous	1937 Total	1936 Total
United States	517,000	55,000	442,000	23,900	130,000	1,167,900	1,092,750
Russia	24,000	41,000	64,000	9,200	20,000	158,200	147,450
United Kingdom	43,000	6,600	27,400	3,700	4,300	85,000	79,970
France	25,000	1,700	17,200	2,300	4,700	50,900	48,790
Canada	21,000	600	14,000	3,600	4,300	43,500	40,400
Germany	20,000	2,250	17,000	1,300	2,450	43,000	38,920
Japan	10,400	2,000	16,500	2,500	2,700	34,100	33,590
Argentina	6,300	1,200	16,000	300	1,500	25,300	24,700
Mexico	3,600	1,000	15,000	300	1,690	21,590	18,250
Italy	5,200	900	11,300	900	1,700	20,000	16,900
Neth. West Indies	180	30	13,500	40	4,300	18,050	16,650
British India	2,650	6,950	4,100	1,050	1,400	16,150	15,070
Australia	7,500	1,300	3,600	450	1,000	13,850	13,270
Rumania	700	1,000	9,000	200	1,500	12,400	14,820
Neth. East Indies	1,500	1,950	6,100	250	1,500	11,300	10,100
The Netherlands	3,500	2,000	3,500	400	1,000	10,400	9,040
Iran	540	1,080	4,900	320	2,100	8,940	8,400
Sweden	4,000	900	2,900	400	700	8,900	7,930
Venezuela	650	30	1,300	40	6,300	8,320	7,760
Brazil	2,700	850	4,200	250	100	8,100	8,050
Belgium	4,600	370	1,300	430	530	7,230	6,750
China	1,000	2,500	2,900	280	360	7,040	6,850
Total, World	744,380	147,760	768,810	56,350	202,240	1,919,540	1,795,560

It's no accident that the Service Station handling Exide is always ahead of the crowd . . . . .

WITH a line of batteries that meets all kinds of conditions, the service stations handling Exide have a good, sound, stable battery business—in a field that grows larger every year. In every price class, they are selling the finest battery it is possible to build. Behind them they have the power of Exide advertising, which has been running constantly since the year the electric starter was invented.

When it's an Exide you start—in more ways than one. You start a chain of satisfaction and good will that builds sales for many of the other lines of merchandise you handle. You start selling batteries the easy way, the profitable way—the way that creates volume business. No technical skill is needed.

This is no idle claim. It is being done right now by thousands of the stations handling Exide from coast to coast. The Exide Proposition puts you ahead of the crowd. Aggressive selling will keep you there. See your Exide Wholesaler today, or write to us.

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia

The World's Largest Manufacturers of Storage Batteries for Every Purpose

Exide Batteries of Canada, Limited, Toronto

the K.M.A. field, with ultimate production of 400,000,000 barrels, which some said was a too optimistic figure. It was estimated that 700 wells will be drilled in this field in 1938.

Texas Panhandle — New developments resulted in considerable extention of already existing pools in Hutchinson, Gray and Carson counties. Known proven acreage in Hutchinson county was augmented by 1130 acres in northeast Carson county by about 3000 acres and in Gray county by 800 acres.

West Texas — McCamey field in Upton county extended approximately 1900 acres principally to the west, Harper field extended 2000 acres to the northwest. Development rate in this district in 1937 exceeded that of 1936 by about 70 per cent.

Texas Gulf Coast — In this area 27 new pools were reported as discovered in 1937, 10 per cent of the new pools for the entire country. Production of oil in this area in 1937 totaled 119,937,000 barrels, an increase of 31.5 per cent over 1936, due mainly to new fields and the extension of old fields rather than to increased production in old fields.

East Texas — During the year, 106 exploratory wells were drilled, leading to the discovery of three new fields, Precilla, Opelika and Tool, and extending the Rodessa field into Marion county, adding more than 2000 acres of oil and gas area to the original field.

During the past year, 2330 oil wells were completed, making a total of 24,361 producing wells, which produced 271,337,000 barrels, making the total for the field since its beginning 1,156,352,834 barrels.

South Texas — There were 17 new field discoveries in South Texas in 1937, of which 14 produced oil and three gas only. Outlook for 1938 were promising for an increase in activity than at the beginning of 1937.

Oklahoma — In 1937 25 per cent more wells were drilled than in 1936 and daily production was 10 per cent larger than 1936. The Oklahoma City pool continued its decline, the average well pressure being reported as not over 50 pounds and possibly as low as 30 or 35 pounds. Its wells are still capable of producing considerable oil, however, because of the permeability of the structure. Water flooding is expanding in northeastern Oklahoma, over 400 wells being drilled as water input wells. Potential capacity of this state declining, with nothing in sight to increase that potential in 1938, it was reported.

Kansas — Last year was reported as the most eventful one experienced in this state in the development of oil and gas activity, 57 new pools being discovered, 18 in eastern Kansas and 39 in western Kansas. More new oil was found than was produced during the year and reserves were estimated as added to by 10 per cent during the year.

Total number of wells drilled was 2657, of which 1915 were oil wells and 128 gas wells. Initial production of the oil wells was 2,500,000 barrels. Dry holes numbered 614, about 23 per cent of the wells drilled.

New Mexico — Well spacing of one well to 40 acres as practiced in the Permian Basin area of New Mexico has permitted an allowable of 80 to 90 barrels per well under proration; while the allowable in West Texas, where one well is drilled to 10 acres, is 25 barrels.

South Louisiana — An active drilling campaign resulted in the discovery of 14 new fields. The economic importance of 10,000-foot production was regarded as far-reaching and the objective depths placed on some wildcats was 12,000 feet. A producing well one mile from shore in Galveston Bay is taken to indicate active drilling in submerged areas.

Illinois — This state's daily production was trebled in 1937, increasing from 12,000 barrels at the start of the year to 37,000 barrels at the end of the year. Production from old fields declined slightly, most of the new production being from fields in the central part of the Illinois Basin, an area for many years considered unfavorable to the occurrence of oil and gas.

Although development has not gone far enough to make an accurate estimate of oil reserves in the new fields, it is believed they are at least 100,000,000 barrels. Total productive area of the new fields at the end of 1937 was 1712 acres, in which 224 wells were producing.

In the whole state 449 wells were completed, of which 291 were oil producers and one a gas producer. Total daily initial production was 78,885 barrels, an average of 271 barrels per well. At the end of the year, the average production per well in the new fields was a little above 100 barrels a day.

Indiana — The drilling program in the Illinois Basin reached Indiana in the last half of the year, resulting in the discovery of an oil-producing structure near Prairie Creek in Vigo county.

Michigan — This state produced an estimated 16,668,000 barrels in 1937, an increase of 4,800,000 barrels over the year preceding. The Buckeye field of Gladwin county produced 6,470,000 barrels in 1937, while in 1936 it produced less than 10,000 barrels.

Most of the exploration for new fields in this state has been confined to shallow drilling for structural markers in areas where the glacial drift is from 200 to 700 feet thick. Geophysical work done in the past has not been successful in these drift covered areas.

New York — The area of the oil fields in this state is about 60,000 acres and it is estimated that not over one-fourth of the area has yet been subjected to the water flooding method of oil recovery. Very little of the flooded territory has ceased to produce. Some leases flooded by the early less scientific methods were reported as being again subjected to the water drive. At the present rate of production, it is estimated the oil supply will last from 25 to 30 years. With a moderate increase in the number and size of the floods, large production can be maintained for at least 20 years and at a declining rate for 25 years.

Pennsylvania — The outlook for 1938 is for more drilling activity in the search for deeper horizons for gas particularly.

Lignite Hydrogenation Plant for Russia

N. P. N. News Bureau

WASHINGTON — Initial experimental unit for hydrogenation of lignite to make gasoline and other petroleum products in Soviet Russia has been completed at Kharkov, according to information received by the Commerce Department.

The unit is now being tried out, and the first gasoline has been produced, it is said, under a technological process worked out by the Kharkov Coal-chemical Institute which adopts the well-known Bergius method of hydrogenation to Ukrainian lignites.

The Bergius method already is being used on a large scale in Germany and Great Britain and a small experimental plant is being operated by the U. S. Bureau of Mines at its Pittsburgh experiment station (N. P. N., July 21, '37, p. 15).

Plans of the USSR are to open up similar plants to the one at Kharkov at various points in Siberia and the Far East where solid fuels are found, thus opening up new prospects for economic development of these regions.

Good Customer For Airways

CHICAGO — Allan Jackson, vice-president in charge of sales for Standard Oil Co. of Indiana, will soon complete his 100,000th mile and 250th flight in regular use of airplanes for business.

Two Hotels for A.P.I. Meet at Wichita

NEW YORK, Feb. 17.—Sessions of the eighth mid-year meeting of the American Petroleum Institute, to be held at Wichita, Kan., May 23, 24 and 25, will be held both in the Allis and Lassen Hotels.

The Division of Production committee meetings and group sessions will be held at the Allis, while all other committee meetings and Division of Refining group sessions will be held at the Lassen.

The program has not yet been announced.

Made West Texas Manager

LOS ANGELES—Howard S. Cole Jr., production executive on the Pacific Coast for The Texas Co. of California, has been appointed assistant manager of the West Texas division of the company's producing department, according to C. E. Olmsted, president. His headquarters will be at Ft. Worth. R. L. Keyes, drilling superintendent on the Pacific Coast, succeeds Cole.

Automotive NOTES AND COMMENTS

By JOHN W. THOMPSON
N. P. N. Staff Writer

AFTER all, this business of trying to guess what the American public will like in the way of next year's motor cars must be a ticklish proposition. For in that public you have a queer group mind that impulsively reacts to a diversified number of interests that are often discarded as quickly as they are acclaimed.

It is, of course, elementary to repeat that the rutted American mind finds relief in fads and fancies. For awhile it may be mud-wrestling, or the issue of whether the doughnut or the fried cake is more popular, or a dimpled and tighted ice skater. The average American today can tell you more about a ventriloquist's dummy than he can about his own local traffic laws.

Tomorrow there will be other fads and fancies, just as the present ones have replaced the Empress Eugenie hat, the airplane endurance flight, and government for the people.

Is it any wonder, then, with such a fickle public, that the car manufacturers hesitate to throw a rear-engine car on the market?. It is quite well known that this type of car is being operated experimentally by more than one manufacturer, but at present it's a case of "You go first, Horace".

* * *

In spite of the big companies who wave the flag and shout this "Onward Industry" and "Industry Marches Forward" stuff, there is an element of truth in the fact that progress in industry is dependent in a measure upon what the competitor is doing.

Progress often means sticking out one's neck, and that is something which most manufacturers are willing that their competitors should do. Hence, the "You go first" attitude may very likely be holding up the advent of the rear-engined passenger car, as well as television, longer mileage socks, and the triple-rich chocolate malted milk.

Knowing what to do and when to do it, is as important to the car manufacturer as it is to the puppy who is trying hard to learn parlor routine. The public went for the Ford V-8 engine in a big way when it was first introduced, but Chrysler found its Airflow model about ten years ahead of the procession. Now who could have predicted the public's turn in those cases — aside from the federal government, of course?

* * *

The American Automobile Association, in its current effort to unravel a solution to the popular thriller, "The Mystery of the Oil Change Period", is finding clues at every turn. Unfortunately, too few of them seem to match up to form a conclusion. It has been found that the 500-mile figure did a good deed in making the car owner conscious of the need for frequent changes and check-ups, and that the 1000-mile drain period is frequently suggested as the logical interval.

Now the AAA recommends that the car owner follow the recommendations laid down by the car manufacturer, pointing out that there is no reason why the motorist should "be a pawn in any inter-industry controversy." Which, as our President in Washington once said at the conclusion of one of his radio chats with Congress and the peepul, "that's not asking them, that's telling them."

* * *

Worry Note: A Cleveland concern is now working on a new type of bearing for automotive use that may do a little upside-down-turning of the industry.

* * *

The makers of the Fram oil filter, the unit used on Studebaker, Graham, Lincoln-Zephyr, and Cadillac V-16, would like to have the following facts about their company noised around: all factory employes have just received a 10 per cent wage increase: increased business has made necessary a move to Providence to a larger plant; a new plant has been leased near Detroit; and the company has just closed the largest January business in its history.

* * *

There doesn't seem to be any end to the ingenuity of the human. Now the Associated Press shows you how to smoke in bed without fear of burning holes in the sheets and things.

You simply dip the sheets in a solution of seven ounces of borax and three ounces of boric acid to two quarts of water. It is not injurious to colors or fabrics, according to the A. P., but must be applied after every washing as the solution is not waterproof.

While this has nothing to do with automobiles, we really feel that you should get something helpful from this page, after all.

* * *

According to an investigation made recently by the Bohn Aluminum and Brass Corp., piston ring life has nearly doubled in the past five years. Where formerly rings were changed at about the 20,000-mile mark, they now operate efficiently for 35,000 miles or higher.

The results have been accomplished by a variety of improvements including reduced piston clearance due to better expansion control, harder and more accurate cylinder bores, structural improvements in pistons . . . and, of course, better rings.

* * *

Charles F. Kettering, of the General Motors Ketterings, makes an interesting and common-sensical point about diesel engines. Says Mr. Kettering, instead of making diesel engines like steam engines or gasoline engines, why not make them like diesel engines.

He was speaking in connection with his company's expansion in the diesel field, and added that "we are trying to make these engines the way they would be made if the other engines weren't in existence".

We quote further on "Boss Ket's" remarks:

"A fellow talking to me the other day wanted a very special engine, and he was very emphatic about it. He said, 'You have to make that engine fit in that place'. I said, 'We won't do it. Let me tell you why that is silly. You say I have to make a certain engine fit in a certain place, and you know as well as I do in two years from now the place will be gone. You want to buy this new type of machinery for the thing you have got, a vehicle that you know you won't be making at all two years from now.' I said, 'We are going to make the engine the way we know it will run, and if it is any good, you will make a vehicle to fit it'.

"And that is the one big problem, the one big gamut that a new thing has to run. It always has to go into a place where something else came out."

Yes, there are a few folks left who say something when their jaws open.

* * *

The demand for aspirin among car dealers continues to exceed their demand for new cars. With the new car market definitely geared up to the used car market, the stagnation of the latter is being reflected in new car sales.

While it hasn't gotten down to the point of Say-Buddy-won't-you-buy-a-used-car-and-help-out-a-car-dealer, many feverish attempts are being made to break up the used car logjam. Most car companies are putting on used car sales drives backed by imposing advertising space in newspapers.

Some newspapers are donating advertising space in their columns to glorify the used car, knowing that only an improvement in automobile sales will bring back their advertising revenue from this source.

* * *

The subject of rats is always of interest. For instance, did you know that 20 years ago the rat population in Great Britain was 40,000,000. And there's also the fact that an effective stock of 10,000,000 rats would boost its population over a period of one year to 41,000,000, which would put quite a strain on the family trap, any way you look at it.

If you would like to know more about this fascinating subject, simply send an old used car, 10 cents to cover cost of mailing, and a Mother Mulaney Liver Pill box top, and we will send your copy of that informative little booklet entitled, "You Rat", which gives you complete facts from an automotive standpoint. (Adv.)

* * *

COMING NEXT WEEK: "Bertha, The Sewing Machine Girl".

SELLING FURNITURE Thru Service Stations

This Household Line Is A Pennsylvania Independent Oil Marketing Company's Latest Venture Into The General Merchandising Field, In Which It Now Sells Over 1100 Items

By **V. B. GUTHRIE**
N. P. N. Staff Writer

AN INDEPENDENT oil jobber with headquarters in Washington, Pa., has built a business from a $60 soldier's bonus check to $3,000,000 net sales annually by merchandising, through service stations, about everything a man could think of in the way of automotive, household, garage hardware, mine, mill and farm supplies.

The company talks about selling 1100 items and if there is any error in this figure it is on the side of modesty. The range is from electric razors to water systems for farm homes, from a 5-cent package of pins to a $444 refrigerator, just to pick extreme items from the air- or rather from a company salesman's voluminous catalogue. In addition it has a gasoline business running around 10,000,000 gallons a year and a remarkable kerosine, road oil, lubricating oil and grease business.

This company is the Ross Independent Oil Co. It was organized in 1925 and incorporated in 1928. Most of the company's business experience has been in that period the rest of us unhappily refer to as "the depression." Having had no previous period of any length to compare with, the officials of the company refuse to recognize even the present as adverse days and cheerfully plug along making a good profit each year.

Their latest adventure into the field of general merchandising through gasoline stations has been the taking on, within the past few months, of a complete line of household furniture. This step was enough to send a retail furniture association into something of a conniption fit, a war chest being asked to fight the selling of furniture by such channels, and the statement being made that, unless this was stopped, half of the country's retail sales within a few years would be through gasoline stations.

A portion of the street floor show rooms of the Ross oil company in its headquarters building at Washington, Pa. Radios and electrical household equipment are predominant here

THE head of this unique oil marketing company is Raymond A. Ross, a quiet appearing individual, still young enough to wear an American Legion button in his coat, whose figure as yet shows none of the signs of spreading out here and there that comes to those who find an increasing inclination to sit in a comfortable office chair at a desk. His right hand man is C. S. Coen, executive vice-president, who has been with him from the start, and who terminated an earlier connection with an eastern refining company on being told by the head of that company that he "just wasn't cut out for a salesman." Another vice-president is E. C. Muelhaupt, who was formerly territory sales supervisor for a nationally prominent lubricating oil marketer. He is now in charge of the company's business throughout Ohio. Byron T. Ross, a brother of the company president, is treasurer and manager of the Akron, Ohio, branch. Carlton B. Coen, a Naval Academy graduate, is secretary and manager of the Canton, Ohio, branch. These two branches were opened only a few years ago.

The following general principles can

A portion of the temporary furniture display rooms of the Ross Independent Oil Co., located on the second floor of its headquarters building at Washington, Pa. An addition to the building is being put up to permanently house the furniture display

be set down as the reasons for this company's success in business in a highly competitive territory, and in such an unusual development of an oil marketing business; although it is to be hoped that no reader takes these pages as a textbook and sets out to do likewise himself, without great deliberation. With all the principles and business rules he will need at least a portion of the energy, enthusiasm and good operating practice that Mr. Ross and his associates put into their business continually.

FIRST, this company operates in a limited territory and it has expanded slowly and always with the thought in mind that this particular type of a marketing business must be in quick reach of the heads of the company. Developing a limited territory intensively has been the rule here. Its territory covers two counties in Pennsylvania and nine in Ohio, all told about 22,500 square miles.

As a most important link in its sales methods, the company maintains a display and sales room for its complete line of products at its headquarters and smaller display rooms at its branches. Its dealers are encouraged to bring, or send, prospects to these display rooms and, doing business in its present territory, most dealers can reach its headquarters by a drive of not over an hour.

A second general principle it follows is that the Ross Independent Oil Co. is a jobbing or wholesaling company exclusively. It makes its profits entirely off the wholesaling operations and all the retail profits on its business go to its dealers. It does not encourage commercial consumer tank wagon business. Those of the public who would buy the brand of gasoline the company sells must go to a dealer's place of business. The dealer is encouraged to sell any and all items in the company's line he thinks he can handle and the retailer's profit goes to him if he has only turned up a prospect.

"See your nearest Amoco dealer," is the message to the customer which appears in all the company's advertising.

Closely akin to this policy that for the Ross Independent Oil Co. to be successful in business its dealers must also be successful, is its policy that an oil marketing company cannot stand on its gasoline and oil business alone, in these days of multiplicity of outlets and diminished gallonage per station.

Back in the days when the company had only some 55 or so outlets and when its margin on gasoline was much larger, Mr. Ross began to realize that there were tremendous sales possibilities in gasoline stations, with customers coming in regularly for gasoline and oil if the dealers could be made to realize those advantages and

POLICIES OF MARKETING COMPANY SELLING GENERAL MERCHANDISE

• The following general rules or policies are given as the reasons in good part for the success of the Ross Independent Oil Co. In handling a wide variety of general merchandise:

1—The company operates in a limited territory, developing it extensively. This gives close contact by company salesmen and executives with each account and makes it possible for dealers to bring prospects to the company's headquarters, where a full display of its line is carried.

2—The company is wholesaling company only. The full retailer's profit on practically all sales goes to its dealers.

3—It carries standard makes of fast moving lines and stays away from novelties and knickknacks where buyers' tastes may change quickly.

4—It operates its own financing plan, which is less costly to the customer than most financing plans and it insists that payments be made to the dealer, so that the dealer has additional contacts with that customer as a basis for other sales.

5—Each department of merchandise carried must stand on its own feet as far as profits are concerned. If it cannot return a wholesaler's profit to the Ross oil company it is dropped.

6—The selection of merchandise carried was originally based on what its dealers reported people were asking for. Now it carries about everything in the way of home furnishings and supplies that could be thought of.

could take advantage of them only as far as a few of those customers were concerned. The company set out then, not long after it had started in business, to select other merchandise items than gasoline and oil for its dealers to sell and to build a merchandising program that would help them to sell these products.

Out of this theory and as a result of considerable experiment—and after overcoming the strenuous objections of manufacturers to having their first lines sold through gasoline stations—the Ross company worked out the policy of handling only standard makes in fast moving lines, selling them at the list price—except in the case of occasional bargain and promotional sales—but giving the dealer as sales incentive a more generous retailer's margin than most wholesalers allowed. The company has an exclusive jobber's franchise on some of its lines, but not on all.

THE Ross company does the installation work and servicing of such lines it handles as electric refrigerators, gas ranges, furniture, washing machines, radios and so on. It handles the matter direct with the customer where there are complaints about the merchandise. It believes the customer is never wrong and if he has a complaint it must be adjusted to his entire satisfaction. In other words, the company does everything to make an incentive for the dealer to devote his entire time and interest to the sale of its goods. The company feels that no dealer should be forced to carry any of its lines that do not move readily for him, as it only ties up the dealer's capital with the final result that he goes out of business and the company loses a customer, and a dealer worth having is one worth taking care of.

As a necessary adjunct to the sale of a great many of the items the company handles is a lease financing plan. The company has its own R.I.O.C. plan of deferred payments. The cost of financing is six per cent of the unpaid balance. Any 100 per cent dealer of the company can use the plan, to the extent of the amount of credit determined by the company.

Sales arrangements with the dealer are such that the customer makes the payments to him instead of sending them direct to the company. This serves two purposes, Mr. Ross believes; first, it impresses on the dealer his responsibility to see that the credit payments are kept up and, second, it insures that the customer comes into the dealer's place of business at least the number of times called for by the deferred payment plan and each time he is a potential customer for something else the dealer has to sell.

Still another definite policy the company follows in widening its lines of general merchandise is to make each department stand on its own feet as far as profit is concerned. If it does not pay a profit to the wholesaling company in a reasonable time, it is dropped and the stocks cleared out. Goods of the same general nature, sold to the same class of customers, are called a department, as household furnishings, electrical appliances, petroleum products and mine and mill supplies, for example.

The company has had some sad experiences in lines that would not move through its sales channels. One, curiously enough, considering that it is found on sale in many stations, was candy and tobacco. It was found there was considerable loss in handling this line; that it was hard to stock and handle along with other goods being carried, that stocks deteriorated if not moved promptly and that the handling of candy and tobacco created ill will among salesmen of similar lines for other houses who visited dealers' stations as gasoline customers.

The company also has learned to stay away from what it calls "gewgaws" and novelties, in both household and automotive lines. With these items, it has found, demand drops quickly and in an unexplainable manner and what will sell well in one part of the territory will not move at stations in another part.

About the first question that comes to mind when one finally comes to a realization of the great number and varied lines of merchandise the Ross Independent Oil Co. handles is as to how it is possible to sell this material not necessarily in, but through gasoline stations. The company now has about 485 dealer accounts and the physical setup of these dealer accounts for the most part is the same as will be found at gasoline stations over the country—they have driveways, gasoline pumps on an island and a building which may be small or relatively large and which may have good or poor facilities for the display of merchandise.

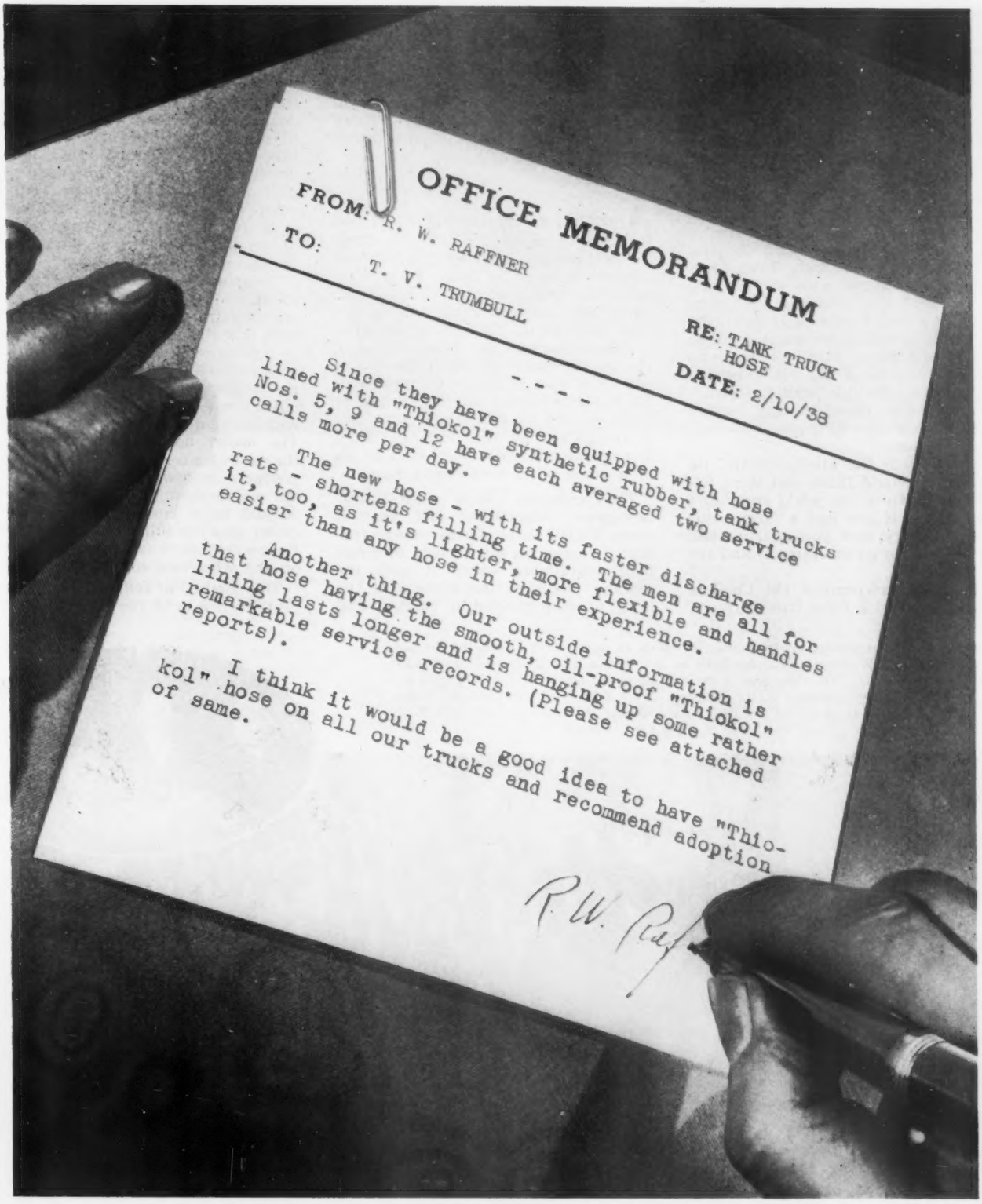
Not all the company's dealers are primarily gasoline accounts but the great majority apparently are of this type. It would be physically impossible for even the largest station on the company's books to display more than a very small portion of the merchandise it sells. The stations do not even have a complete catalogue of the full line of merchandise and their managers would not know how to use a catalogue of the necessary size to list and describe all these items if one were on hand. The company sends out price list and discriptive literature continually to all dealers, keeping them posted on all price changes and new merchandise.

TO answer this question of how the Ross company moves its line through stations, let's sit down with Mr. Ross, if we can catch him on the fly, and let him tell his theory about an oil marketing company's operations.

"When we felt that the oil jobbing companies in the future were not going to be able to exist profitably on gasoline and oil business alone, we had a much smaller number of dealer accounts on our books than we do now," he said, "but these dealers were continually asking us if we could not buy tires, batteries, household appliances and so on for them or their families. There were potential sales possibilities right there that some company or other was taking advantage of and we didn't see why it could not just as well be an oil marketing company as any kind of merchandising outlet.

"Then, carrying the same thought further, all our dealers had friends and relatives, some of whom we thought we could sell if we could handle reliable good merchandise under favorable sales conditions. Also those dealers had potential customers for everything a human being buys rolling into their stations regularly to buy gasoline and oil. If those dealers could be made to learn the needs of only a small proportion of those gasoline customers and we could take care of those needs we believed there was extra profitable business for both ourselves as the jobbing company and

Present merchandise display room, office headquarters and bulk storage plant of the Ross Oil Co. at Washington, Pa. On the end of the building in the foreground, construction has been started for an addition to the show rooms, adding 5000 square feet of display space for merchandise


OFFICE MEMORANDUM
FROM: R. W. RAFFNER
TO: T. V. TRUMBULL
RE: TANK TRUCK HOSE
DATE: 2/10/38
- - - -
Since they have been equipped with hose lined with "Thiokol" synthetic rubber, tank trucks Nos. 5, 9 and 12 have each averaged two service calls more per day.
The new hose - with its faster discharge rate - shortens filling time. The men are all for it, too, as it's lighter, more flexible and handles easier than any hose in their experience.
Another thing. Our outside information is that hose having the smooth, oil-proof "Thiokol" lining lasts longer and is hanging up some rather remarkable service records. (Please see attached reports).
I think it would be a good idea to have "Thiokol" hose on all our trucks and recommend adoption of same.
R. W. Raf

Leading brands of hose are made with oil-proof "Thiokol" linings. These synthetic-lined hoses save you time and money. Ask your supplier for "Thiokol" hose today. Or write us for the list of Manufacturers. Thiokol Corporation, Yardville, New Jersey.

the dealer and we didn't see why there should be any limit as to the kind of merchandise we sold, provided it could be handled profitably."

The prime requisites for such a sales policy were close contact with the dealer accounts by the company's salesmen and representatives and a good profit incentive for the dealer, Mr. Ross went on to say. On this theory of close contacts, he practices what he preaches to his salesmen. He visits his stations frequently. When a dealer talks to an outsider about the company, he doesn't tell what some salesmen said; but he will tell you what Mr. Ross himself said the last time he was in the place. Even more than close contacts with the dealers, the head of this business will carry this idea a step further and go to the customer himself if necessary to close a sale. One dealer who was trying to tell how the head of this company worked, scratched his head and finally brought forth the following, which after all describes him about as well as can be done.

"Mr. Ross is the kind of man," he said, "that would think you were letting him down on the job if you didn't call him up, if you had a farmer out in the country that you couldn't sell and tell him to go out himself and see the farmer."

The Ross Independent Oil Co. has 30 salesmen, aside from truck drivers, which is a large number for a company covering as limited territory as that in which this company operates. When a new dealer account is taken on, a company salesman is required to stay by that account for ten days, not necessarily spending all his time there but getting in at least once a day. After that a company salesman will see that dealer at least twice every week and more often if the dealer will ask for his help.

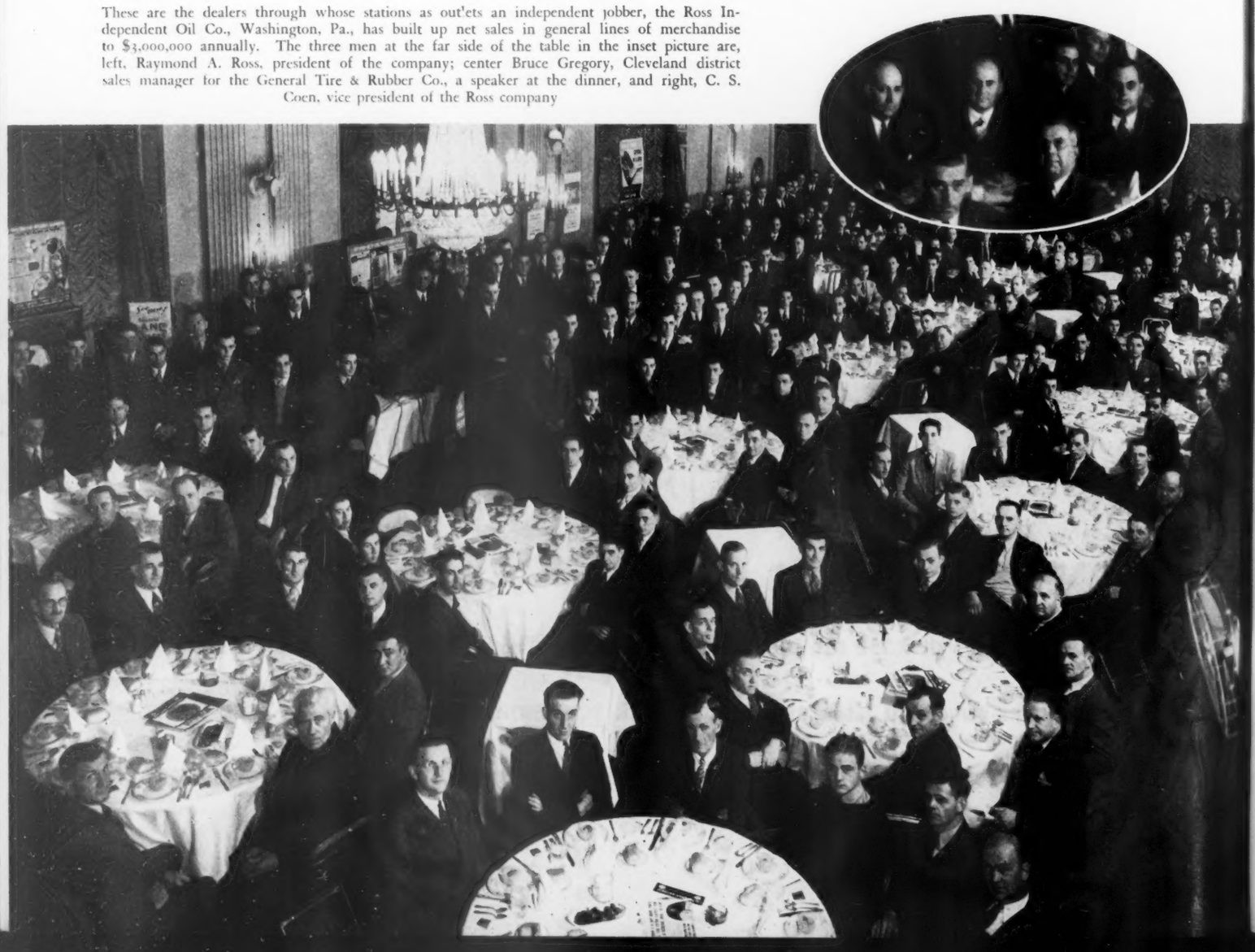
ASIDE from direct salesmen's contacts, the company, under the direction of vice-president Coen sends out a great amount of sales letters, announcing new products taken, special offers and seasonal drives on certain lines and so on. When merchandise is offered for sale, the letters set forth plainly the price at which the dealer buys and that at which he must sell. These terms are the same to all dealers large or small always and this fact is recognized by the dealers. There is no contemplating what kind of an offer some other dealer may have.

The company does considerable newspaper advertising—last year it spent $30,000 in all forms of advertising; it carries on a good deal of direct mail advertising which it uses the mailing pieces of the makers of the lines of merchandise it carries, and all of this advertising is directed to bring the customer into the dealer's place of business. "Visit your nearest Amoco dealer," used in all this advertising, might well be considered the company's slogan.

All this, and more, the company does to tell the dealers what it has to sell and how to sell it. Not all its dealers will sell even a major portion of its line, but the close contact of the company salesman with the individual dealer allows the salesman to pick out what the dealer can sell, depending on his location, whether he is in the town or in the country, type of people trading at his station and so on.

To spur the dealer to put his best effort into sales, the company's methods of extra profits for the dealer are such that the dealer is paid for turning in a prospect who later makes a sale. As was said earlier, the company does no retailing itself except that from buyers who come to its main office without being sent there by a dealer. The dealer not only knows that all the profit from retailing the company's products in his territory go to him; but where he turns in a prospect who is sold by a company salesman the dealer gets the full retailer's profit, the Ross oil company taking only the profit on the wholesale transaction.

This method of selling through prospects turned in by the dealer is carried



These are the dealers through whose stations as out'ets an independent jobber, the Ross Independent Oil Co., Washington, Pa., has built up net sales in general lines of merchandise to $3,000,000 annually. The three men at the far side of the table in the inset picture are, left, Raymond A. Ross, president of the company; center Bruce Gregory, Cleveland district sales manager for the General Tire & Rubber Co., a speaker at the dinner, and right, C. S. Coen, vice president of the Ross company

This modern warehouse building houses the extensive and varied merchandise stock of the Ross Independent Oil Co. It is located across the street from the company's headquarters. Its three stories have 45,000 square feet of floor space. Ramps are to be constructed in the rear so that trucks can drive to all floors. The truck in the center of the picture shown leaving the warehouse carries a tank of 690 gallons capacity, while the platform top is constructed to carry a 5000-pound load. The storage at the right is for heavy oils

out to the fullest extent in the line of household appliances and household furniture which the company sells. In this connection the company operates a complete sales and display room at its headquarters just on the outside of the town of Washington, Pa., and it is now starting to build a larger display room for the complete line of furniture it took on some months ago.

IN fact, the visitor to the headquarters of the Ross Independent Oil Co. might feel like backing out, once he had entered the building, to look up at the name over the entrance to make sure he was entering an oil marketing company's headquarters. For the main entrance leads into a large display room, in which is shown every type of household electrical appliance imaginable, kitchen stoves, lamps, rugs, chairs, beds and so on. Just off this display room is a radio sales and service department and upstairs the present general offices of the company are crowded into smaller space to make room for a display of furniture alone. This will be moved to the new addition of the headquarters building.

The theory on which the company operates this display room is that it provides a place where dealers from all over its territory may bring prospects to show them something in the company's line in which the prospect has been interested by the dealer. The sale will be completed by company salesmen always on the floor, if necessary, but the dealer will get the full retailer's profit on the deal. On one sale of furniture this may amount to more than that dealer could make on his gasoline business on an entire month.

In fact, the dealer does not have to come to the central display quarters with his prospect. The prospect may bring a card of introduction which the dealer has given him and in that event the full profit of the sale is that dealer's. If the prospect says that such-and-such a dealer sent him, he still receives the profit. The display and sales room is open evenings until ten, to give the dealers fullest opportunity to use it.

There are special company salesmen always on the floor, but any officer of the company will lend a hand to make a sale too. While this writer was being shown around the display room by vice president Coen, a shabbily dressed prospect approached to inquire about buying sparkplugs. Mr. Coen interrupted the interview to make the sale, which was to fit the customer's needs and not what possibly he could have been talked into buying.

Why did the Ross oil company take on the sale of a complete line of household furniture of good and nationally known makes, a reader might well ask. The answer here, as in the case of most of the lines of merchandise the company handles, is that the dealers reported people were asking for it. The step was a short one from household electrical appliances to furniture and the company felt that people who could be sold electric refrigerators and radios were also prospects for furniture. Not having experience in this line itself, the company employed the services of the manager of a local furniture store who was dissatisfied with his prospects there.

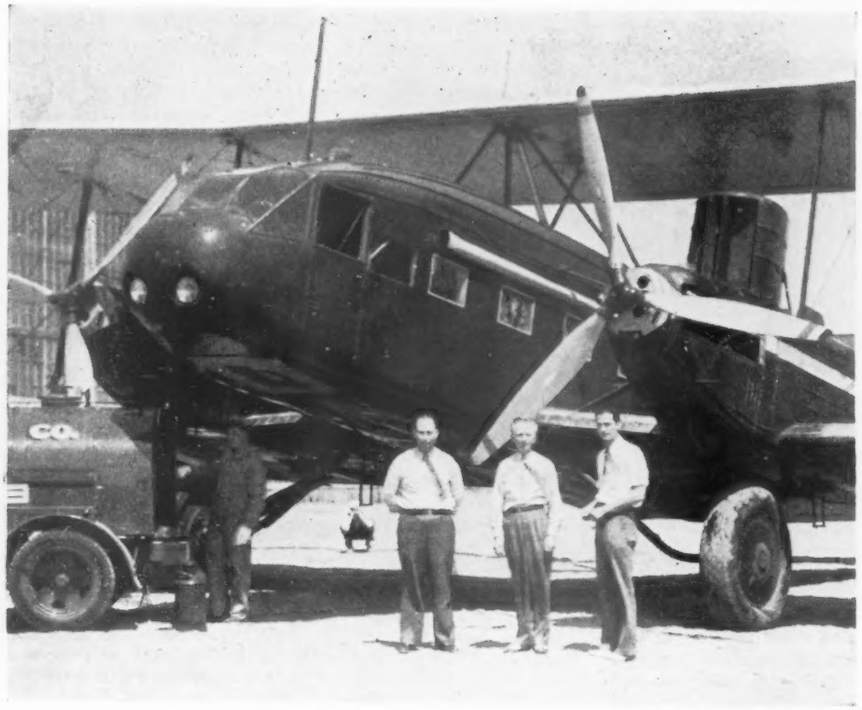
A GOOD bit can be learned about a company's policies and theories from its history. What later came to be the Ross Independent Oil Co. was started not long after the close of the war when president Ross, like many thousands of youths returned from war service, was casting about for a future livelihood. This is where the $60 bonus check referred to at the start of this article comes prominently, if briefly, into the story.

With this check Mr. Ross made the down payment on a truck and started

ANY QUESTIONS?

• There are so many unusual features of the oil marketing business as it has been extended to general merchandising lines by this Pennsylvania oil company that readers may have points in mind on which they would like further detail.

Raymond A. Ross, president of the Ross Independent Oil Co., has told NATIONAL PETROLEUM NEWS he will answer requests for information regarding this type of marketing business as far as he is able. Letters of inquiry may be sent to the company's headquarters at Washington, Pa., Canton, Ohio, or Akron, Ohio, or they may be sent to NATIONAL PETROLEUM NEWS and they will be forwarded.—Editor



Byron T. Ross, treasurer, Col. Clarence Chamberlin, the aviator, and E. C. Muelhaupt, vice president of the Ross Independent Oil Co., in front of Chamberlin's plane. In the summer of 1936 this aviator's services were used in a promotional capacity

in the coal hauling business at the edge of town. The land on which he operated came to a point where the railroad crossed the National highway U. S. Route No. 40 and he considered its possibilities for a gasoline station back in those days when stations were not so numerous as now by a long shot, but this point was mostly swamp. So he had his trucks which hauled coal into town stop at a gravel yard on the way back and haul out gravel to fill the swamp. There he built a gasoline station—the building still stands, being used now as a watchman's shanty, but it has been left high and dry above the flow of motor traffic today, the highway now running through a subway cut under the railroad tracks here.

Mr. Ross ran this station with a partner for a few years and then left his partner to continue the station business and he formed the Ross Independent Oil Co. in 1925, to do an oil marketing business. He took into the company with him Mr. Coen, who, as a refinery salesman, had sold him the gasoline which he sold at his station. The company was incorporated in 1928. It has handled one brand of gasoline for 11 years. Its gasoline business now runs over 10,000,000 gallons annually.

When the company had some 55 dealer outlets it started out to take on a line of tires. Tire manufacturers, however, didn't want their products sold through gasoline stations. That was an unheard of business departure then. So the Ross oil company didn't have much luck until a local tire dealer went bankrupt and the company bought his stock of goods at a sheriff's sale to make up the loss on his gasoline account. Then they called up the tire manufacturer and told him the Ross Independent Oil Company was now in the tire selling business and would he ship the oil company some assorted sizes to fill out its line. The tire company demurred but finally said it would try an oil company account for a few months but it didn't have any idea it would work out. The company has sold one line of tires now for several years and its tire sales alone amount to about $150,000 annually.

The next "outside" line the oil company took on was batteries and here at the start it also had trouble getting a good line. It "had to play lame horses," as one company executive expressed it, until the battery manufacturers came to accept distribution for their products through service stations. The next step was into automotive accessories such as tire chains, lamp bulbs, fanbelts, radiator hose and so on.

The first break the Ross oil company made into the household furnishings field was electric refrigerators; from there into washing machines, cooking stoves, heating stoves, and finally a complete line of furniture after it began to receive calls for such items as living room, bed room and dining room suites. As its method of operations and its advantageous financing plan began to be known throughout its territory, it was asked to handle more and more quality lines. Curiously enough, and nearly good enough for Ripley's Believe It Or Not column, this oil marketing company sells drilling cable both steel and manila to oil contractors in its territory. An accompanying tabulation lists the various lines the company handles. To describe them fully would necessitate publishing many manufacturers' catalogues.

The company now operates in Washington and Greene counties, in Pennsylvania; and in Summit, Portage, Medina, Wayne, Holmes, Tuscarawas, Stark, Carroll and Columbiana counties in Ohio. It has operated in the western part of this territory, with Canton and Akron as headquarters only a few years. Its territory, generally speaking, is good farming country and industrial sections, with numerous small towns. The territory all told is about 22,500 square miles.

HOWEVER, the management doesn't think about its marketing districts so much in terms of population as of car ownership. It figures sales in relation to the number of cars operated and believes that more and more of the country's general retailing is going to be done through the service stations which bring car owners in to buy gasoline and oil.

The method in which the Ross oil company handles the financing on the merchandise sold through its dealer outlets is one of the most important adjuncts of its business. This financing is handled directly by the Ross interests, instead of through any outside agency. The company's financing plan is open to any 100 per cent dealer whose credit rating is up to a certain standard and who follows scrupulously the company's financing arrangement. Where the dealer makes his own financing terms he has to take the full financial responsibility. When a dealer account is taken on by the company he is allowed a certain volume of sales through financing the purchase for the customer. When the goods are sold the lease is held by the company until the financing is completed, the payments being made by the purchaser direct to the dealer. The financing charge is a straight six per cent. As an added incentive to the dealer to see that the financing arrangements are properly made and adhered to by the customer, the dealer gets half the financing cost—that is three per cent—when the transaction is completed.

The company's terms call for not over 12 weeks to carry a $25 purchase; not over 24 weeks on a $50 purchase. On household electrical equipment such as refrigerators two years are allowed for completing the payments, to meet the usual terms offered by other dealers in such merchandise. When an account "goes sour" the oil company takes it over and the customer makes his payments direct to the company.

As an added incentive to the dealer to push the sale of such merchandise where there is a trade-in on present merchandise held, the oil company allows the dealer the traded-in equipment, in addition to his established retailer's margin. Some of the dealers who are of a mechanical turn of mind

make an added profit by fitting up and repainting such merchandise taken in on trades as washing machines, refrigerators and so on and selling them again outright.

Such a financing plan as the Ross oil company operates might not work satisfactorily if carried on over a wide territory, where close contact was not maintained with dealers and with customers if necessary. When a dealer guarantees an account, that is accepted by the oil company without question if the dealer has maintained a good record in this respect. In case of a question, however, the standing of the purchaser as far as credit is concerned can be looked up quickly.

For the most part the Ross Independent Oil Co.'s business is conducted on full list prices. Its dealers are not allowed to sell at cut prices; they do meet the prices at which commercial consumers are buying at other stations but this is not encouraged by the company.

ON OCCASION, during the past few months, with a falling market in general merchandise lines, the company has offered some special bargain sales on various lines. Just before Christmas, for example, the company had an opportunity to buy a carload of 800 1938 model radios from one of the largest national manufacturers in the business at a low price. These radios were made to sell at $74.50. The oil company took full page newspaper space and offered the radios—through their dealers—at a price to the customer of $49.50, with a trade-in allowance of $15, a net price on the radio of $34.50. The company sold 800 of these radios in 19 days before Christmas. At another sale, 400 sets in one model were sold in 8 days during November.

Just recently the company advertised "Another sale sensation" on one make of washing machines, based on the trial sale of 50 such machines in the early part of December. In a special bulletin to all dealers it announced it had gone into the market and picked up all available units, 200 washers of both the gasoline and electric driven models. It also announced an exclusive franchise on this make of washer in its territory and stated its terms with a trade-in allowance of $10 on old machines. The sales letter to their 485 dealers from vice president Coen closed with the following:

"While there is much talk about the business recession, etc., it is our theory that human beings are going to Live, Love, Die and Buy and that someone is going to make the Sale.

"What we need is (1) a good Proposition, (2) plenty of advertising, (3) plenty of your PERSONAL initiative at the point of sale.

"We have the proposition and are backing it with an aggressive advertising campaign. It is up to you to furnish the initiative and Sell-SELL-SELL WASHERS for a prosperous 1938."

The Ross Independent Oil Co. is not

1100 and More Merchandise Items Sold by Ross Oil Company

• Accompanying is a list, not entirely complete, of the various lines of general merchandise, as well as petroleum products, handled by this company. To carry the complete list of all items and sizes would take many pages. The company's policy is to carry standard makes and in many cases the lines of more than one manufacturer are carried. The listing of the items here is without significance as to order and is done only to give an impression of the varied lines sold by this marketing company.

• Petroleum Products

Gasoline; lubricating oils; greases, specialty products; kerosine; naphthas; heating oils; fuel oil; road oils.

• Household Furnishings

Refrigerators, electrical and gasoline & kerosene operated; radios; stainless steel tableware; percolators, coffee urn sets; rugs, carpets, bedsprings; electric roasters; portable and standard washing machines; of both the electric and gasoline motor operated type; card tables, electric fans; vacuum cleaners, porch gliders; complete line of furniture; ranges and heating stoves; carving sets, lawn mowers; teakettles, kitchen ware; hair dryers; curlers; ironing tables; garbage cans; kitchen sinks and drain boards; electric razors; toasters, heating pads; waffle irons; electric clocks.

• General

Complete line of jewelry of all kinds; fishing tackle; radio tubes and parts; bicycles and bicycle tires and tubes; typewriters and adding machines; complete line of electrically operated shop tools; hydraulic jacks and wrenches of all kinds; paints, varnishes, enamels of all kinds; paint brushes; rifles and shotguns; shells and cartridges; toys, including sleds, wagons, doll buggies, scooters, velocipedes, electric trains, chemistry sets; gloves for men, women and children; fishing tackle boxes; hose.

• Automotive Supplies

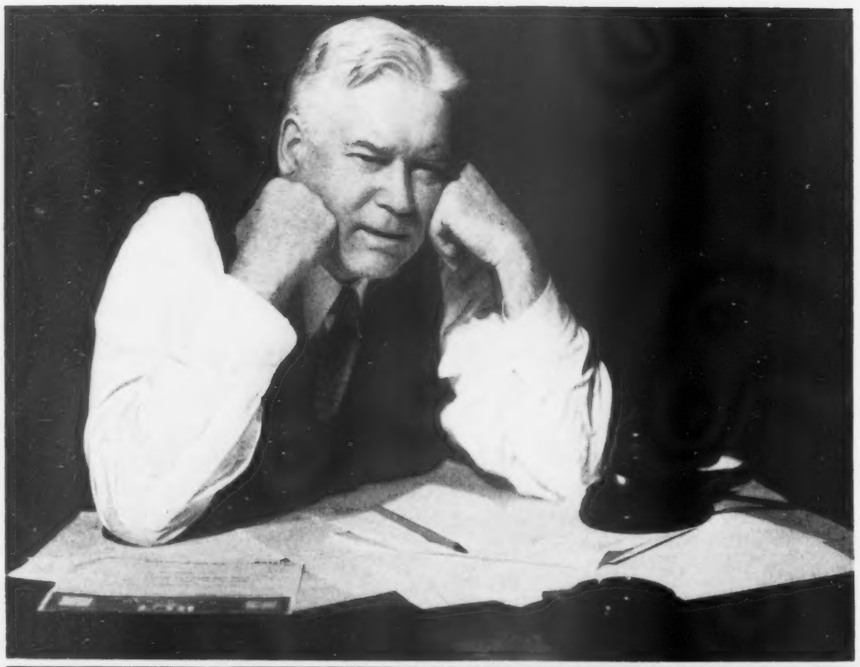
Tires; batteries; general accessory lines; car radios and parts; car heaters, items having to do with electrical system; sparkplugs; windshield products; oil filters and cartridges; valve gauges and valve parts; tube repair systems; cleaning and polishing fluids; touchup enamel; highway flares; chains, bulbs, flashlights; hose, fanbelts, defrosters; floor mats; cushions, horns, grilles; hydraulic brake fluid and servicing parts; brakes and brake lining; vulcanizing outfits; disc wheels and spokes; car radiators and parts.

• Station and Garage Equipment

Lifts, air compressors, greasing equipment of all types; gasoline pumps; anti-freeze pouring spouts; cans; buckets, funnels; air towers, oil dispensers, hose; spray for cleaning glass; tools for brake, battery, tire and lubrication service; electric signalling device.

• FARM MINE AND MILL AND OIL WELL SUPPLIES AND EQUIPMENT

Paints of all kinds, wire fencing; steel sheets, roofing products; complete lines of tools; gasoline motors; nails and hardware; water systems for homes; drilling cable sand lines, Industrial wire and manila rope; fire extinguishers and so on.



"Where Can I Find the Right Pump?"

Our Standard Line is Your Logical Answer—WITH ECONOMY

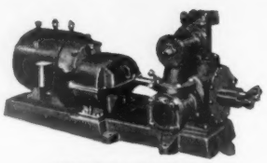
Next time you need pumps for any application, write us before your plans mature.

Chances are 100 to 1 we can meet your requirements (large or small—no matter how unusual) with pumps from our standard line—and that always means money saved as compared to the purchase of special equipment.

For more than 30 years BLACKMER has built pumps for all types of petroleum handling services. We have solved literally thousands of different pumping problems—the accepted authority in your field.

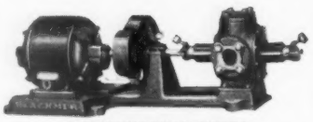
Ask to have the nearest BLACKMER representative call at your office. That's a sure way to get the results you're after—and get them at lowest cost.

BLACKMER PUMP COMPANY
1886-8 Century Ave., Grand Rapids, Michigan.



INTEGRATED UNITS

Standardized throughout for low first cost, using standard motor. Complete and compact. Equipped with BLACKMER Bucket Design Pump, Base, Strainer, Bypass and Self-lubricated Drive. Sizes to 700 GPM; also built as Twin Units with two pumps.



CONVENTIONAL UNITS

Completely designed to meet individual requirements, using any drive desired—motor, steam turbine or gas engine. Sizes to 700 GPM; also built as Multiple Units with two to six BLACKMER Bucket Design Pumps.

HAND PUMPS

Easy to turn—fast positive action — capacities to 20 GPM. Ideal for pumping from drums or barrels, or mounted on small tank trucks. Suitable for handling any petroleum product from light oils to heavy greases.

BLACKMER ROTARY PUMPS
AUTOMATIC TAKE-UP FOR WEAR
EXCLUSIVE BUCKET DESIGN

only a progressive, alert merchandising concern but it is an efficient marketing company as well as far as its handling operations are concerned. For example, the company telephone business between the headquarters and its branches throughout its territory is handled at night when lower toll rates are in effect. The company keeps its main headquarters and its branch headquarters, as at Canton and Akron, open in the evenings until ten o'clock, so that office help is available to take care of night telephone calls.

The company maintains limited stocks of its merchandise on display and in warehouse at its branch plants. Deliveries from headquarters to these branches are made at night, with trucks that are in operation during the daytime making deliveries to dealers and customers. Trucks are routed wherever possible to make one full trip to a dealer. One truck was observed loading at the Canton plant. It was a ton and a half tractor and trailer. It was carrying a consignment to one dealer of 1640 gallons of gasoline, 10 cases of oil in a side rack, 24 tires strapped on top of the truck tank, 10 batteries in the large rear compartment, two radios on the side rack and assorted small merchandise in the rear compartment.

Some of the company salesmen drive panel trucks and carry with them on their trips to dealers small stocks of merchandise which experience has told them these dealers are apt to order.

THE company has recently completed a large three-story warehouse across the street in Washington from its offic headquarters and display building. The steel framework of this building is heavy enough so that it can be added to extensively if necessary and so that heavy enough floors can be laid to drive trucks on. The plan is to build ramps to all floors of the building so that trucks can drive even on the floor on every story to load and unload. In this warehouse the company maintains a furniture refinishing department.

Strangly enough, the Ross Independent Oil Co. is a marketing company which sells more lines of varied merchandise than any other oil jobbing company in the country and yet it does not handle oil burners. It tried them, however, but inasmuch as its territory is in the center of a coal producing and natural gas district, it found to great competition to make it worth while to push the sale of oil burners. It does sell heating oils, however, and it has a considerable business in road oil.

The company claims to have handled over 10,000,000 gallons of gasoline last year with a handling loss of one quarter of one per cent. It keeps its gasoline storage tanks under four pounds pressure. It meters the material through the loading racks at some of its plants and it is putting in at its truck loading rack at its headquarters equipment to conserve vapor losses by loading truck from the bottom.

This company apparently was one

of the first to adopt what has since been called the Iowa plan or dealer market plan for operating stations. In 1933 it disposed of the last of its stations and adopted its policy of confining its operations to wholesale sales alone. Since the days of the NIRA code it has refused to give or "loan" station equipment to dealers unless forced to by competition to retain its position. The company is jobber for many prominent service station equipment manufacturers and it will arrange almost any kind of reasonable terms by which a station operator or owner may purchase needed equipment such as hoists, air compressors, air towers and so on and pay for it out of his gasoline margin. The company advances money to dealer accounts, if conditions warrant, to improve their properties but here also payment has to be made out of the station's profits.

Mr. Ross says that, in his 15 years of business experience he has never cut an employe's wages. His company now has 85 employes. It pays higher than the prevailing rate of pay for like work.

If you, the reader, are ever in the neighborhood of Washington, Pa., it will pay you to visit this oil company. You will be welcome to inspect its operations in detail. You will know the place because you will see a billboard in front of some gasoline storage tanks, the billboard advertising household furniture on sale and telling the public to "Drive Out and Save the Difference." But don't drive by; that is really this oil marketing company's headquarters.

Texas' Output Up 21% in 1937

TULSA — Fields of Texas produced 507,234,236 barrels of oil in 1937, a daily average of 1,389,406 barrels, according to the Texas Railroad Commission. The figures are obtained from monthly sworn reports made by oil producers.

The year's production exceeded that of 1936 by 88,180,292 barrels, or 21 per cent. The yearly summary shows that the number of operators increased by 420 to a total of 5167 and that the number of operated leases was 15,122 at the end of December, an increase of 1383 over the close of 1936.

At the end of December, 1937, there were 77,565 producing wells in the state, of which 31,011 were flowing. Flowing wells constituted 39.9 per cent of the total. At the close of 1936, 40.5 per cent of the 68,054 wells were flowing. The gain in producing oil wells in the year was 9511.

December's production was below the annual average, being 1,322,613 barrels daily. This was 77,187 barrels less than the Bureau of Mines forecast of demand and was 2.76 per cent under the allowable production set by the Railroad Commission.

When you sell Pyroil you sell Honest Service

HONEST SERVICE BUILDS YOUR BUSINESS. PYROIL PROVES ITS CLAIMS. IT DOES A BIG JOB OF PROTECTION FOR YOUR CUSTOMERS—AND YOU MAKE A BIG PROFIT—TWO WAYS—AS A RESULT.

With seven years of continuous national advertising behind it, Pyroil is a sound bet to gain steady extra profits for you—and influence customer satisfaction, besides.

Pyroil is a product you can stand back of. It's harmless. It works. Recommend it to the skies. It will not let you down. For Pyroil, used as directed, accomplishes decidedly better, safer car operation and saves money for its user.

It's good business to handle a product like this. It brings in new customers and keeps them coming back to you instead of to just anywhere. Let us give you some further interesting profit building facts through our nearest Distributor. Mail Coupon below at no obligation whatever. Manufactured and guaranteed by Pyroil Company, W. V. Kidder, Founder, 587 LaFollette Ave., LaCrosse, Wisconsin.

YOU MIGHT AS WELL PULL PYROIL CUSTOMERS INTO YOUR STATION AS TO LET THEM GO SOMEWHERE ELSE. A PYROIL SIGN WILL DO IT!

Simply ADD A FEW OUNCES TO GAS TANK AND CRANKCASE

PERHAPS THERE IS A FRANCHISE OPPORTUNITY IN YOUR TERRITORY. CHECK AND MAIL COUPON FOR FACTS.

PYROIL COMPANY
587 LaFollette Ave.,
LaCrosse, Wisconsin

Please have your Distributor call, or mail further facts.
☐ Send facts concerning a possible Franchise Opportunity.

Name .....
Address .....
City ..... State .....

New Patents

Compiled by R. E. Burnham, patent and trade-mark attorney, 511 Eleventh Street, N. W., Washington, D. C., from whom copies may be obtained at the rate of 25c each. State number of patent and name of inventor when ordering.

December 28, 1937

REFINING

Purification of crude waxy hydrocarbons—James M. Whiteley, Roselle, and Hans G. Vesterdal, Elizabeth, N. J., assignors to Standard Oil Development Co. Filed Feb. 26, 1932. No. 2,103,504.

Method of converting hydrocarbon oil—Harris A. Smith, Port Arthur, Tex., assignor to Texas Co. Filed Aug. 23, 1932. No. 2,103,561.

Process for production of lubricating oil—David R. Merrill, Long Beach, and Philip Subkow, Los Angeles, Calif., assignors to Union Oil Co. Filed Oct. 24, 1932. No. 2,103,591.

Apparatus for purifying oil—De Witt H. Palmer, Elkhart, Ind. Filed Jan. 2, 1934. No. 2,103,635.

Method of and apparatus for heating oil—Audley E. Harnsberger, Winnetka, Ill., assignor to Pure Oil Co. Filed Dec. 7, 1934. No. 2,103,719.

Method of distilling lubricating oils—Fred G. Fellows, Ponca City, Okla., assignor to Continental Oil Co. Filed Apr. 11, 1932. No. 2,103,898.

Treatment of hydrocarbon oils—George Armistead, Jr., Scarsdale, N. Y., assignor to Gasoline Products Co. Filed Nov. 9, 1933. No. 2,103,977.

MISCELLANEOUS

Process for preparation of sulphuric derivatives—Edwin J. Gohr, Elizabeth, N. J., assignor to Standard Oil Development Co. Filed Nov. 9, 1934. No. 2,103,255.

Production of polymers of ketene and preparation of esters thereof—Peter J. Wiezevich and Anthony H. Gleason, Elizabeth, N. J., assignors to Standard Oil Development Co. Filed Apr. 17, 1934. No. 2,103,505.

Method and apparatus for testing hydrocarbon gases—Lon S. Gregory, Tulsa, Okla., assignor to Refinery Supply Co., same place. Filed May 16, 1935. No. 2,103,582.

Non-gumming motor fuel—Lester S. Bale, Shaker Heights, Ohio, assignor to Standard Oil Co. (Ohio). Filed Apr. 23, 1935. No. 2,103,927.

* * *

January 4, 1938

REFINING

Treatment of motor fuel—Jacque C. Morrell, Chicago, Ill., assignor to Universal Oil Products Co. Filed July 29, 1932. No. 2,104,049.

Process of combining hydrocarbon gases with hydrocarbon liquids—Malcolm P. Youker, Bartlesville, Okla., assignor to Phillips Petroleum Co. Filed Sept. 14, 1934. No. 2,104,285.

Process for converting hydrocarbons—Frederick E. Frey, Bartlesville, Okla., assignor to Phillips Petroleum Co. Filed Mar. 25, 1935. No. 2,104,296.

Method of fractionation—Petrus J. Roelfsema, Walnut Creek, Calif., assignor to Shell Development Co. Filed July 14, 1934. No. 2,104,310.

Solvent refining of mineral oil—Daniel Stryker, White Plains, and James H. Grahame, Mount Vernon, N. Y., assignors to Texas Co. Filed May 10, 1934. No. 2,104,379.

Process for solvent treating oils and recovering solvent—Edgar V. Murphree and Edward D. Reeves, Baton Rouge, La., assignors to Standard Oil Development Co. Filed July 14, 1934. No. 2,104,401.

Treatment of hydrocarbon oils—Gustav Egloff, Chicago, Ill., assignor to Universal Oil Products Co. Filed May 15, 1935. No. 2,104,418.

Treating hydrocarbon oil—Robert E. Manley, Port Arthur, Tex., assignor to Texas Co. Filed June 27, 1930. No. 2,104,567.

MISCELLANEOUS

Lubricating oils—Mathias Pier, Willy Hirschberger, and Heinz Lemme, Germany, assignors to I. G. Farbenindustrie. Filed Mar. 28, 1935. No. 2,104,097.

Radiator cleaning composition—Waldersee B. Hendrey, Beacon, N. Y., assignor to Texas Co. Filed Aug. 27, 1934. No. 2,104,385.

Lubricating preparation—Hugh F. Green, York, England. Filed Aug. 5, 1935. No. 2,104,641.

* * *

The following to Standard Oil Development Co. as assignee of the inventors:

Lubricants—Peter J. Wiezevich, Elizabeth, N. J. Filed Sept. 30 and Oct. 3, 1933. Nos. 2,104,408 and 2,104,409.

Production of hot mix cold laid bituminous pavements, and method of producing a hot mix cold laid paving mixture—Charles M. Baskin, Toronto, Ont., Canada. Filed Aug. 30, 1934. Nos. 2,104,410 and 2,104,411.

Alkyl phenols—Hyym E. Buc, Roselle, N. J. Filed Dec. 29, 1931. No. 2,104,412.

Now you can replace any tire valve on any size of tube and make all sizes and shapes of "Hot Patch" repairs with one vulcanizer! The new Schrader Vulcanizer handles all tubes, from the smallest cycle to the largest truck size. It's rugged, too—built to last for years has no gadgets—no delicate parts to replace. It is not dependent upon electric current—has no wiring—no installation problems.

When you start a cure it's completed surely and quickly. The clamp of the vulcanizer distributes pressure evenly over the entire area of the work, to produce a thorough, feather-edge cure in approved factory style.

Heat is applied the Shaler "Hot Patch" way. Each job has a fresh heat unit, assuring the exact temperature for a perfect job every time!

Bring your tube repair department up-to-date with equipment that will handle more work for you.

A. SCHRADER'S SON
Division of Scovill Manufacturing Company, Incorporated
BROOKLYN, N. Y.

2 LOW-PRICED SETS

No. 9900	No. 8900
1—8900-A Vulcanizer	1—8900-A Vulcanizer
2—No. 15 RH* Valves	2—No. 15 RH* Valves
3—No. 25 RH* Valves	3—No. 25 RH* Valves
3—No. 35 RH* Valves	3—No. 35 RH* Valves
1—Roughener $4.25	2—No. 50 RH* Valves
	1—Roughener $5.00

*RH means with heat units

Order Shaler "Hot Patches" from your regular source of supply

2 WAYS TO BUY

1. In the specially priced No. 9900, or No. 8900 Vulcanizer Sets.
2. Order the No. 8900-A Vulcanizer only (price $3.25), plus separate quantities of valves with heat units to meet your particular requirements.

SOLD BY LEADING AUTOMOTIVE WHOLESALERS EVERYWHERE

Schrader
TUBE VULCANIZER
ALL PRICES SHOWN ARE DEALER PRICES IN U. S. A.

TRADEMARKS

The following are trademark applications pertinent to our field pending in the United States Patent office which have been passed for publication and are in line for early registration unless opposition is filed promptly. For further information address National Trade-Mark Company, Munsey Building, Washington, D. C., trademark specialists.

As an additional service feature to its readers, this journal gladly offers to them an advance search free of charge on any mark they may contemplate adopting or registering. You may communicate with the Editor of this Department, or send your inquiry direct to the National Trade-Mark Company, stating that you are a reader of this journal.

Published Feb. 1, 1938

DESIGN, WITH BARS. Ser. No. 399,685. Standard Oil Company of California, Wilmington, Del., and San Francisco, Cal. Filed Nov. 12, 1937.

For lubricating oils, flushing oils.

N. F. O. Ser. No. 399,774. New York & New Jersey Lubricant Company, New York City. Filed Nov. 15, 1937.

For lubricating oils and greases.

* * *

Published Jan. 25, 1938

ZINGERY OIL MAP CO., and arrow. Ser. No. 398,137. Zingery Oil Map Co., Fort Worth, Tex. Filed Oct. 4, 1937.

For oil maps.

* * *

Published Feb. 8, 1938

CO-OP and design in circle. Ser. No. 400,118. National Co-operatives, Inc., Indianapolis, Ind. Filed Nov. 24, 1937.

For fly spray.

"V" and word VULVAN. Ser. No. 396,068. The Freedom Oil Works Co., Freedom, Pa. Filed Aug. 6, 1937.

For lubricating oils and greases.

FONSE, and design in circle. Ser. No. 400,407. Floyd Commadore Forester, doing business as Independent Oil Co. of N. C., North Wilkesboro, N. C. Filed Dec. 3, 1937.

For gasoline, motor oil, lubricating oils and greases, kerosene, and naphtha.

XACTOMOUNT. Ser. No. 399,918. S. F. Bowser & Company, Incorporated, Fort Wayne, Ind. Filed Nov. 19, 1937.

For meters for oils, gasolines, and other liquids, predetermined stop devices for use with liquid meters to control the operation thereof and registers for use with liquid meters to indicate and/or record the operation thereof.

Only One Taker For High-Speed Tankers

WASHINGTON — Although the U. S. Maritime Commission notified all oil companies in the country that they might take one or more of the 12 high-speed tankers which Standard Oil Co. of New Jersey now has on order, under an agreement with the commission, no other company has indicated an interest, it was said at the commission today.

The companies were given until Feb. 1 to let the commission know if they wanted some of the vessels, which are to be fitted with high-speed engines and other defense features to enable them to travel with the fleet as auxiliary vessels in time of war.

The New Jersey company has already let contracts for the vessels, which are to cost $37,566,004, of which the commission will pay $10,563,000 as its share for the high-speed and other defense features.

Four shipyards which will each build three of the tankers are Sun Shipbuilding and Dry Dock Co., Chester, Pa.; Newport News (Va.) Ship Building and Dry Dock Co.; Bethlehem Ship Building Corp. (Baltimore yard); and Federal Ship Building and Dry Dock Co., Kearny, N. J. (See N. P. N., Jan. 5, 1938, Page 20 for complete details).

British-American Transfer

TULSA — A. J. Eklund has moved from Houston to Tulsa to become superintendent of the land and lease department of British-American Oil Producing Co., it is announced by W. K. Whiteford, vice-president and general manager. Mr. Eklund has been associated with Boone Brothers Oil Co. for several years and prior to that was with Barnsdall Oil Co.

HOUSTON — Houston will hold another Oil-World Exposition next year and has set the dates at April 24 to 29 1939, according to directors who met Feb. 10. Ed G. Lenzner, general manager of last year's show, was unanimously elected manager of next year's event.

THE MARK OF *Progress*

IN SHOCK LUBRICATION

The design below has been selected to better display our trademark "dag". This supercedes the familiar triangular emblem which has been in use for many years. The added visibility afforded the mark "dag" will improve identification of the Acheson line of products.

An increasing number of marketers are indicating the presence of "dag" colloidal graphite in their oils. Look for the phrase "contains 'dag' colloidal graphite manufactured by Acheson Colloids Corporation" on their labels. Write for descriptive data.

Ask your oil supplier about his colloidal graphited oils today.

ACHESON COLLOIDS CORPORATION
PORT HURON MICHIGAN

dag
REG. U.S. PAT. OFF.
COLLOIDAL PRODUCTS

ACHESON COLLOIDS CORP., PORT HURON, MICH.
Please send gratis, story on "dag" Colloidal Graphite.

NAME.....

ADDRESS.....

New Equipment

AND THE MANUFACTURERS

NEW MILLER TIRE—The new Miller Imperial tire, said to be especially designed to meet the requirements of powerful and fast cars in traffic, has just been introduced by the B. F. Goodrich Co., Akron. It is claimed that wet road tests show an unusual degree of positive skid protection when the going is slippery.

The company states that the carcass of the new tire has extra strength and extra rubber insulation between its flat-laid cords, for greater resistance to heat and friction.

CURTIS COMPRESSORS

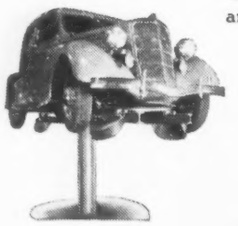
Stay Young!

Think of the years to come as well as today's cost when you buy an air compressor. If it's a CURTIS, you can be assured that it will give you a dependable, low-cost supply of air for many years. There is a sound basis for this youthful stamina in Curtis' 84 years' engineering and precision manufacturing experience.

Ask any user about the value of these proven Curtis features:

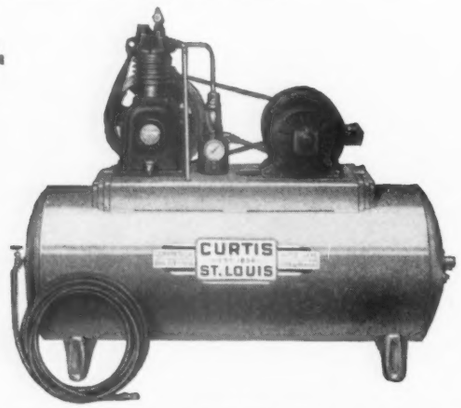
- **CENTRIFUGAL UNLOADER**—no starting load.
- **TIMKEN BEARINGS**—less friction, adjustable.
- **CENTRO-RING OILING**—positive lubrication.
- **V-BELT DRIVE**—quiet, efficient.

The modern, clean-cut appearance of Curtis Compressors makes them stay young in appearance as well as performance.



Curtis Oil-Locked Lifts

Safely handle all cars. Complete accessibility. Self-leveling platform can't stick. Drop-away wheel guides center car.



CURTIS PNEUMATIC MACHINERY CO.

1965 Kienlen Avenue, St. Louis, Mo.

NEW YORK • CHICAGO • SAN FRANCISCO

MASTER KRAFT PERSONNEL — Ray G. Whipple, for the past 15 years treasurer of Harvey-Whipple, Inc., Springfield, Mass., manufacturers of Master Kraft oil burners and air conditioning equipment, was elected general manager of the corporation at a recent board meeting.

The announcement states also that "Bill" Scully, of Springfield, a veteran of 25 years in the sales and engineering departments of the oil burner industry, has joined the Master Kraft sales department.

The company announces that during the past year its Master Kraft dealer organization has increased 51 per cent and plans have been made to open up new sales territory in several midwestern states.

Ray G. Whipple, recently elected general manager of Harvey-Whipple, Inc., Springfield, Mass.

* * *

COMBINATION STANDLITE — A new type of light for service stations, that illuminates both the pump island and the station building, has just been announced by the Goodrich Electric Co., Chicago.

The unit, known as the Combination Standlite, consists of a pump island light and reflector, on top of which is mounted a swiveled flood light, arranged for both vertical and lateral adjustments.

In pointing out the advantages of the unit, the company claims that with the light source located close to the building an adequate volume of light is provided to make the building stand out sharply, and at a saving in the cost of current.

* * *

TANK TRUCK HOSE — Approximately 378 miles of tank truck hose was sold last year, according to Thiokol facts, a leaflet published by Thiokol Corp., Yardville, N. J. A sizeable percentage of this 2,000,000 feet is said to have been made with an oil-

Send for these four BOOKS

BEAUTIFULLY ILLUSTRATED IN COLOR

The "OVERHEADDOOR"

IN ITS

–ADAPTABILITY–

Blends with every type of construction

Backed by

A NATION-WIDE, SALES-INSTALLATION SERVICE

OVERHEAD DOOR CORPORATION

HARTFORD CITY, INDIANA, U.S.A.

CLIP THIS COUPON and MAIL NOW

MADE IN ANY SIZE FOR ANY OPENING
ELECTRIC OR HAND OPERATED

Please send me literature and full information regarding your product.
I am interested in doors for the particular purpose as checked:

PRIVATE GARAGE
PUBLIC GARAGE
WAREHOUSE
GREASING STATION
WOOD DOORS
STEEL DOORS
FACTORY DOORS
OTHER BUILDINGS
ELECTRIC OPERATORS

Name .....

Address .....

City ..... State .....

NPN-2-38

Mail to: OVERHEAD DOOR CORPORATION, Hartford City, Indiana, U. S. A.

Years of Experience . . .

—and the ability of our latest equipped refineries, with efficiency and knowledge, enables us to manufacture Gasoline, Kerosenes and Fuel Oils with permanent uniform specifications.

We manufacture all types of burning oils from Bunker Fuels through to Incubator Kerosene. This group includes Range Oil, Furnace Distillate and all grades of Industrial Fuel Oils. We have a specification oil for every purpose.

Your inquiries will be greatly appreciated.

JAMES B. BERRY SONS' CO., INC. OIL CITY, PA.

Branch Offices: New York City; Chicago, Ill.; Boston, Mass.; Philadelphia, Pa.; Houston, Texas; London, England; Hamburg, Germany; The Hague, Holland.

Refineries: Oil City, Pa.; Emlenton, Pa.; Farmer's Valley, Pa.; St. Mary's, W. Va.
Ocean Terminals: Baltimore, Md.; Tiverton, R. I.; Dorchester, Mass.; Carteret, N. J.; Edgewater, N. J.; Glastonbury, Conn.; Philadelphia, Pa.

The Accepted Standards of Pennsylvania Bright Stock Excellence Since 1900

◆

H-M and L-M Oils Are Made Solely By

THE CONEWANGO REFINING CO.

Warren, Pa.

proof "Thiokol" synthetic rubber lining. Service stations also bought more of this type of pump hose in 1937 than in any previous year.

* * *

AUTOMOBILE HEATERS — The Stewart-Warner Corp. started 1938 production of its South Wind automobile heaters Feb. 15. Production schedule will double 1937 volume, according to President J. E. Otis, Jr., and 200 to 300 additional employes will be required.

* * *

NEW YORK, Feb. 21.—The Master Duplicator Division of the John Wood Manufacturing Co., Hartford, Conn., has moved its general sales office from Richmond Hill, N. Y., to 420 Lexington Ave., New York City, according to announcement by Eric S. Bergman, sales manager.

* * *

J. Milton Tucker

NEW HOUSTON STORE — The White-Tucker Co., Dallas, Texas, distributors of oil, gas, and service station equipment, have recently opened a new sales and service store in Houston, according to J. Milton Tucker, a member of the firm. Tucker is well known in the southwest, having formerly been with the Wayne and Bowser companies in a sales capacity.

Profitable Oil

CHICAGO — The National Assn. of Petroleum Retailers has announced a "marketing creed," adopted by its marketing and ways and means committee, which it has commended to the entire industry for universal adoption.

The "marketing creed" sets forth the following eight beliefs:

Belief in protected territory, so the service station will have ample territory for a profitable operation without excessively high margins and so the territory will not overlap the territory of another station handling the same brand.

In confining new station construction to new subdivisions and on new or rerouted highways in view of the service station field being over-built.

Eliminate Quotas

In eliminating the quota basis for gasoline and oil sales, substituting a budget system based on net profit rather than unit sales.

In a minimum lease of two years, cancellable for cause at the end of one year, with the rent neither ridiculously low or high but in keeping with comparable expenses of retailers not leasing from their suppliers, to attract competent, high caliber men to marketing.

In allowing competent marketers to be the market leaders without agents or salesmen interfering with the market structure.

In selling present station equipment to the retailers.

In jobbers and refiners guaranteeing to withdraw from service station operation, and not to re-enter retail marketing.

In suppliers selling company-owned stations to retailers, on an equitable and reasonable land contract.

Oil Taxes One Half Oklahoma Income

TULSA — Directly traceable to petroleum is the huge total of $15,760,478.21 paid in to the state tax commission of Oklahoma in the first half of the fiscal year — July 1-Dec. 31, 1937, according to report of the Oklahoma Tax Commission.

Gasoline taxes yielded $8,380,131.83, the gross production tax brought in $7,249,767.39 and the petroleum excise tax, which is a levy of one-eighth cent per barrel on crude oil, brought in $130,578.99. This money is used to pay expenses of the conservation office of the Corporation Commission and the Oklahoma part of the Interstate Oil Compact expense.

There was an increase of 9.24 per cent in gasoline tax receipts over the like period of 1936; an increase of 18.92 per cent in gross production tax, due largely to increase in the price of crude oil, and a gain of 8.79 per cent in petroleum excise tax collections.

Not traceable is the amount which came from oil as corporation license, income, motor carrier and a long list of other taxes—Oklahoma has about all the kinds ever invented.

The grand total of all taxes collected by the state for the last six months of 1937 was $29,539,774.68, an increase of $4,015,817.17 or 15.73 per cent over the like period of 1936.

New A.P.I. Chapters

NEW YORK, Feb. 21.—Two new chapters of the American Petroleum Institute's Division of Production have been organized; one at Great Bend, Kans., known as the Western Kansas Chapter, and the other at Coalinga, Cal., named the Coalinga-Kettleman Chapter.

Dewey Jordan, Atlantic Refining Co., is chairman of the Kansas chapter, and E. P. Campbell, Standard Oil Co. of California, of the Coalinga chapter.

The Case Against a Fuel Oil Tax

How Such a Tax Would Hit Economic Recovery, American Shipping, Railroads and Home Owners is Outlined in the Brief Against Bill of Congressman Boland from the Scranton Coal District

N. P. N. News Bureau

NEW YORK, Feb. 21. — How the proposed fuel oil tax of one cent per gallon would retard economic recovery, how it would place American shipowners at a disadvantage in competing with foreign lines, how it would burden the already burdened railroads, how it would add $21 to the fuel bill of one and one-third million householders, and how it would punish and discriminate against one industry were marshaled last week a brief which might be called "The Case Against a Tax on Fuel Oil," prepared by the American Petroleum Industries Committee.

The A. P. I. C. brief comes as an answer to "The Case for a Tax on Fuel Oil," a pamphlet distributed to all members of Congress and signed by Representative Patrick J. Boland of Scranton, Pa., author of the tax bill.

The title page of Boland's pamphlet puts the question: "Should Fuel Oil Be Taxed?" Facts and figures supporting an emphatic "NO" were organized in the A. P. I. C. paper, as follows:

H. R. 3134 introduced in the Congress by Representative Boland of Pennsylvania, proposes a Federal tax of one cent per gallon on all fuel oil used for the generation of heat or power, but exempts fuel oil consumed in diesel engines.

This proposal is exceedingly inequitable, and its adoption would bring widespread undesirable economic effects. Many different economic groups and more than one million individual consumers would be seriously penalized, and the revenue yield of this measure would unquestionably fail adequately to recompense them for their economic loss.

Any such Federal tax on fuel oil would be a "nuisance" levy because of its relatively excessive collection and administrative costs. The adoption of such a tax at this time would be wholly inconsistent with the avowed intention of the Treasury Department gradually to remove all "nuisance" taxes, as enunciated by Under Secretary Roswell Magill in a statement made on January 15, 1938.

Such a tax would be exceedingly discriminatory because it would tax one important fuel while permitting other competing fuels to be sold untaxed. Individuals who have installed expensive oil-burner equipment so as to economize on their fuel bills would suddenly find that their investment had been considerably depreciated by this tax.

This bill should not be adopted because:

(1) It would further retard economic recovery through its adverse effects upon so many different industries and consuming groups.

(2) It would increase the cost of operating American shipping by approximately $33,736,080.00 a year, thus making it even more difficult for American ship owners to compete with foreign operators, and both American and foreign ship owners and operators would be forced to purchase their oil in foreign ports where there would be no such tax.

(3) It would add approximately $25,925,340.00 to the annual operating costs of Class I railways, approximately two-thirds of which are now in reorganization or receivership, according to the reports of the Interstate Commerce Commission.

(4) It would add $21.00 to the annual fuel bill of each of the more than 1,350,000 householders who use oil for heating their homes.

(5) It would be an excessive tax because of the proposed rate is equivalent to a sales tax of 15 to 50 per cent.

(6) If the Federal tax structure is to be remodelled along more equitable lines, it is clearly inconsistent to seek revenue from new and untried sources, especially when the levy clearly discriminates against specific industries and specific consuming classes.

Groups Affected

A tax on all fuel oil used for the generation of heat or power in the United States would tend further to retard economic recovery because it would affect so many different groups adversely. Comparative consumption figures by these groups for several recent years are given in Table I.

This table shows that the leading users of fuel oil include the railroads, steamship lines, gas and electric power plants, producers of iron and steel, automobile manufacturers, the United States Navy, and those who use oil for heating, such as owners and operators of hotels, apartment houses, and private homes. They use oil because of its adaptability and its efficiency; because it is cleaner than other fuels; because its heat is easier to control; and because its use eliminates much manual labor.

Industrial and public utility users alone, as shown in Table I, consumed at least 98,125,000 barrels of fuel oil in 1936, the last year for which Bureau of Mines' statistics are available. Consumption of this amount of fuel oil, calculated at a one-cent-per-gallon rate, would cost such industries a total of at least $41,212,500.00 annually. A new tax item of this magnitude would mean that prices of manufactured products to consumers would be correspondingly increased, wages to employes would be reduced, dividends to

TABLE I—DOMESTIC USERS OF FUEL OIL

(In Thousands of Barrels; 1 Barrel Equals 42 Gallons)

User	1932 Amount Used	1932 Percentage of Total	1933 Amount Used	1933 Percentage of Total	1934 Amount Used	1934 Percentage of Total	1935 Amount Used	1935 Percentage of Total	1936 Amount Used	1936 Percentage of Total
Railroads	48,908	16.3	48,305	15.7	52,581	15.9	55,651	15.2	61,727	15.1
Steamships	72,531	24.1	70,445	22.8	69,262	20.9	74,581	20.4	80,324	19.7
Gas and Electric Plants	22,199	7.4	22,507	7.3	23,143	7.0	23,647	6.5	26,799	6.6
Smelters and Mines	3,500	1.2	4,500	1.4	4,814	1.5	2,448	.7	3,768	1.0
Manufacturing Industries	45,000	14.8	47,000	15.3	52,128	15.8	61,128	16.7	67,558	16.5
Heating Oils	44,264	14.7	50,140	16.3	60,822	18.4	76,853	21.0	99,257	24.3
U. S. Navy, Army Transports	7,968	2.6	8,000	2.6	7,914	2.4	10,428	2.8	9,241	2.3
Fuel by Oil Companies	47,700	15.8	46,200	15.0	47,404	14.4	48,116	13.1	46,021	11.3
Miscellaneous	9,500	3.1	11,250	3.6	12,253	3.7	13,133	3.6	13,714	3.2
Total	301,570	100.0	308,347	100.0	330,321	100.0	365,985	100.0	408,409	100.0

stockholders would be curtailed, and, in many instances, the sales of the manufactured products themselves lost to foreign competitors. Economic consequences of this nature would tend seriously to increase operating costs for a large part of American industry, and thus retard business recovery.

Use of oil in ships and locomotives is widespread because the liquid fuel makes possible quicker and easier starting. Oil is also easier to handle because it is relatively light in weight and can be pumped, rather than shovelled. Finally, much higher temperatures and a much steadier heat can be obtained. Most of the leading navies of the world depend on oil for their motive power, and practically all modern passenger and freight vessels use it.

Modern methods for manufacturing steel are almost wholly dependent on oil. The open hearth method of producing steel, modern heat treating, hardening, and tempering have all been made possible by the extremely high temperatures and controlled heat of oil furnaces. These are but a few of the reasons why oil has come to be the chief fuel used in the steel industry as well as in many other manufacturing industries.

Steamships

Table I shows that steamships account for approximately 20 per cent of all fuel oil used in this country. In 1936 they used 80,324,000 barrels, or 3,373,608,000 gallons.

The proposed tax of one cent per gallon would, therefore, impose a burden of approximately $33,736,080.00 a year on the shipping business. This would be particularly unfortunate at the present time because the shipping business is now beset by a multitude of problems.

President Roosevelt referred to some of them in his Congressional message of March 4, 1935. He suggested that the government aid shipping by a subsidy, ". . . and to make up the differential between American and foreign shipping costs."

Royal S. Copeland, United States Senator from New York, illustrated the same point in an article in the April 21, 1935 issue of the New York Times. He showed that the shipping business is highly competitive, and that American shipping concerns find it extremely difficult to compete with the prevailing lower wage scales and standards of living in foreign countries.

The need for government aid has more recently been substantiated by the extensive surveys of the United States Maritime Commission, which clearly show that subsidies are essential to the maintenance of an acceptable United States merchant marine.

A tax on fuel oil would tend to make it much more difficult for American shipping concerns to compete with their foreign rivals. It is clearly inconsistent to advocate a subsidy to equalize competition between American shippers and their foreign rivals, on the one hand, and to levy a tax which has the effect of further handicapping American shipping on the other. In effect, the tax would nullify the subsidy.

Another serious objection to the proposed tax is that it would tend to drive fuel oil business to foreign countries. The fact that most ocean-going vessels have oil storage facilities sufficient to propel them a considerable distance without refueling would make it possible for many ship owners and operators to buy oil in the port where the price is lowest.

At present, bunker fuel oil is being sold along the Atlantic seaboard for $1.11 a barrel, which is 54 cents less than the price in northern European ports and 4 cents less than that in South American ports. A tax of one cent per gallon on a barrel of fuel oil containing 42 gallons would add 42 cents to the price of American oil, making it only 12 cents below the European price and actually 38 cents above the South American price. Reliable sources report that a price change of this amount would be sufficient to drive the greater part of the bunker fuel oil business to dealers in foreign ports.

Even with the present favorable price differential there has been a decline in the amount of fuel oil purchased at American ports during the past few years as shown in Table II. A fuel oil tax would precipitate this decline to a dangerous degree.

TABLE II

Comparison of Decline in Amount of Oil Used By Steamships with Drop-Off in Gross Tonnage

	Oil Used in Steamships (bbls. of 42 gals.)	Percentage Decline (From 1930) Per Cent	Gross Tonnage World Shipping	Percentage Decline (From 1930) Per Cent
1930	94,152,000	....	69,607,644	...
1931	83,559,000	11.3	65,641,035	5.7
1932	72,531,000	23.0	69,734,310	0.2
1933	70,445,000	25.2	67,920,185	2.7
1934	69,262,000	26.5	65,576,612	5.8
1935	74,581,000	20.8	64,885,972	6.8
1936	80,324,000	14.7	65,063,643	6.5

(Oil figures from U. S. Bureau of Mines, 1935, estimated. Tonnage figures from World Almanac, 1937.)

Railroads

It is estimated that there are more than 7,000 oil-burning locomotives in use today. Table I shows that the railroads use slightly over 15 per cent of the total consumption of fuel oil, or 2,592,534,000 gallons, so that a one cent per gallon tax on fuel oil would add $25,925,340.00 to their annual operating cost.

This is especially significant because of the difficult financial straits in which many railroads find themselves at the present time. Figures released by the Interstate Commerce Commission show that 87 of the 139 Class I railroads, on which complete data are available, or approximately two-thirds of the total, are now in receivership or reorganization. Such a tax would seriously burden the railroads.

Table I shows that approximately 25 per cent of all the fuel oil consumed in this country is used for heating. Approximately 4,168,794,000 gallons were used for this purpose in 1936, of which 1,252,776,000 gallons were used in commercial heating and 2,916,018,000 gallons in domestic heating. It is customarily estimated that the average commercial oil burner uses approximately 21,000 gallons of fuel oil a year and the typical domestic burner 2100 gallons. On this basis, a tax of one cent per gallon would add $210.00 to the average commercial heating bill and $21.00 to the fuel bill of the more than 1,350,000 householders who use oil for heating their homes. Figures on fuel oil used for commercial and domestic heating and the number of oil burners in use are shown in Tables III and IV.

TABLE III

Fuel Oil Used in Commercial Heating

Year	Number of Burners Operating at End of Year*	Fuel Oil Consumed (bbls. of 42 gals.)
1930	12,300	17,508,000
1931	20,000	15,919,000
1932	25,700	13,146,000
1933	34,200	14,868,000
1934	47,100	18,265,000
1935	60,600	23,430,000
1936	76,600	29,828,000

*Also includes an indeterminate amount of appliances not used expressly for heating purposes. Authority: American Petroleum Institute.

TABLE IV

Fuel Oil Used in Domestic Heating

Year	Number of Burners Operating at End of Year	Fuel Oil Consumed (bbls. of 42 gals.)
1930	665,000	25,771,000
1931	760,800	24,659,000
1932	843,200	31,118,000
1933	920,300	35,272,000
1934	1,014,100	42,557,000
1935	1,154,700	53,423,000
1936	1,357,100	69,429,000

Authority: American Petroleum Institute.

There has been a marked increase in the number of domestic oil burners in recent years, which may be explained by the many advantages of oil over other fuels. Such considerations as freedom from smoke, dust and ashes, and convenience in operation are leading factors. Once the desired temperature is attained, the oil burner may be shut off, thus conserving the supply of fuel, whereas, other fuels must be burned continuously. The ease with which oil burners respond to peak load demands makes them especially desirable for heating office buildings. Finally, oil burners are reported to have thermal efficiencies ranging between 95 and 98 per

cent, which is considerably higher than the figure for other heating equipment in common use.

The increase in oil burners has been especially marked in domestic heating. Home owners have found that they can economize on their fuel bill by using oil, and at the same time eliminate the inconvenience of handling ashes. If this tax were adopted, there is little doubt that it would seriously retard progress in the domestic heating field, and greatly handicap householders who have already invested in oil burners. Because the cost of fuel is such a sizable item in the budget of the average home owner, it is conceivable that this tax might tend to discourage ownership of small homes.

Excessive Petroleum Tax Burden

An especially inequitable feature of the proposed tax is that it would add another item to the list of 201 different types of taxes now paid by the petroleum industry and the users of its products. In 1937 it is estimated these taxes reached the staggering total of $1,337,235,361.00, or considerably more than 10 per cent of all taxes collected by Federal, State and local governments. Because the consumers of petroleum products are now bearing such a disproportionately large share of the total cost of government, it seems obvious that a Federal tax on fuel oil would simply impose still another burden on them.

This tax would be especially burdensome because of its discriminatory rate. Reports of the Interstate Commerce Commission show that the average price of fuel oil consumed by railroads during 1936 was slightly more than two cents a gallon, which means that the proposed tax of one cent per gallon would be equivalent to a 50 per cent sales tax. The best grades of fuel oil used for heating private homes sell for approximately 7 cents a gallon. A one cent tax on these oils is equivalent to a sales tax of nearly 15 per cent. The discriminatory nature of such a tax is brought out even more strikingly when it is compared with the rate of the typical sales tax, which is usually two or three per cent.

Inconsistency of Proposal

The proposal for a special excise tax on fuel oil is wholly inconsistent with the Federal government's current moves toward remodelling the tax system along more equitable lines. For more than a year the Vinson Sub-Committee of the House Ways and Means Committee, the Joint Committee on Internal Revenue, and the Treasury Department have all been engaged in the formulation of a comprehensive program for the complete revision of the Federal revenue structure.

On January 15, 1938, Under Secretary Roswell Magill, in commenting on a report just issued by the Vinson Sub-Committee, stated that the Treasury was convinced that the present special excise taxes on commodities in general use, which are commonly referred

(*Continued on page* 68)

New Protection for TANK INTERIORS

with Bakelite Resin Finish

Shipper's Car Line Corp. tank cars with interior coating of Bakelite resin finish produced by Lithgow Corporation.

FOR MANY YEARS, industry has sought effective coatings to protect tank interiors against corrosion, and to safeguard tank contents against contamination. Today, through use of Bakelite resins, successful coatings of this type have been developed for numerous different service conditions.

One typical application of these new coatings is on the interiors of the 47 wine tank cars pictured. After thorough testing, a special varnish formulated with Bakelite resin was found lastingly protective to both the tank and its contents in the service indicated.

Other applications of tank-interior coatings made with Bakelite resins have withstood continuous water immersion for two years; or exposure for two years, in weekly alternation, to salt water, gasoline and humid air.

We urge you to investigate the advantages of Bakelite resin varnishes, primers and other coatings for the protection of exterior and interior surfaces of wood and metal.

Write for informative booklet 29S, "Bakelite Synthetic Resins."

BAKELITE CORPORATION, 247 PARK AVENUE, NEW YORK, N. Y.
BAKELITE CORPORATION OF CANADA, LTD., 163 Dufferin Street, Toronto, Ontario

BAKELITE

The registered trade marks shown above distinguish materials manufactured by Bakelite Corporation. Under the capital "B" in the monogram is the numerical age for infinite, or unlimited quantity. It symbolizes the infinite number of present and future uses of Bakelite Corporation's products.

SYNTHETIC RESINS

ARE YOU ONE OF THE

1,000 OIL MEN

Who Get Lower Rates

From NATIONAL PETROLEUM MUTUAL FIRE INSURANCE COMPANY

225 So. 15th St. Philadelphia, Pa.

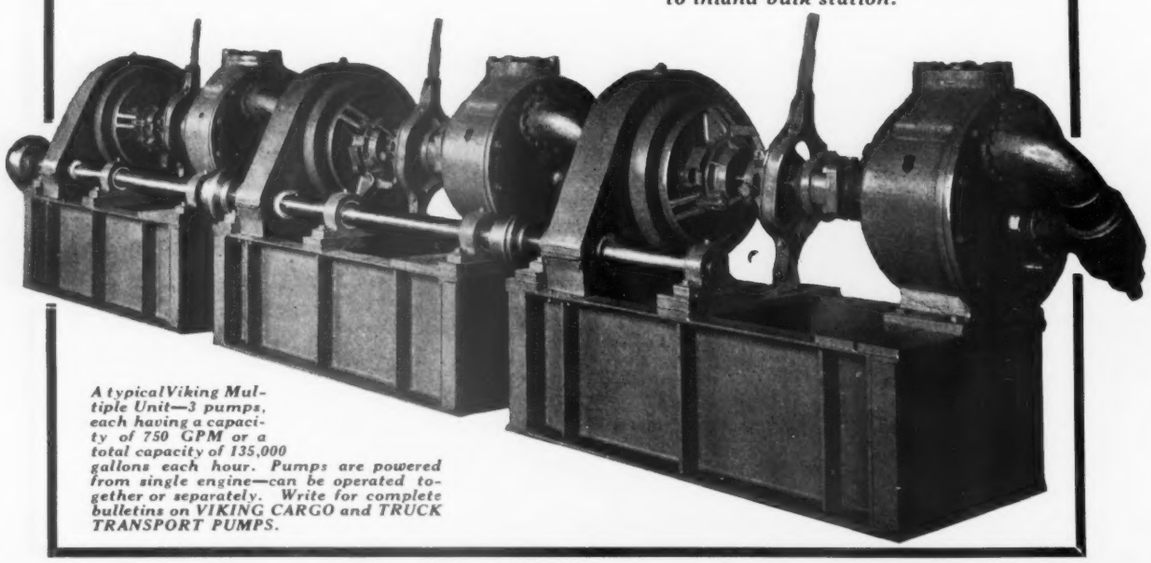
ON LAND OR WATER

VIKING IS THE PREFERRED PUMP

FOR HANDLING PETROLEUM PRODUCTS

From the small mid-western bulk station, to the large inland and sea-going tanker — wherever petroleum products are handled, Viking is the preferred pump. There is no greater proof of this than the fact that throughout the vast petroleum field more Viking Rotary Pumps are used than any other make. The reason for this outstanding preference is no secret. The answer lies in the fact that Viking Rotary Pumps are designed and built specifically for the petroleum industry. And time has proved that they do this job with greater economy — greater dependability.

Figure 120 — For Truck Transport use. Available in 35, 50, and 90 GPM sizes. Speeds up loading and unloading from marine terminal to inland bulk station.



A typical Viking Multiple Unit—3 pumps, each having a capacity of 750 GPM or a total capacity of 135,000 gallons each hour. Pumps are powered from single engine—can be operated together or separately. Write for complete bulletins on VIKING CARGO and TRUCK TRANSPORT PUMPS.

VIKING PUMP CO.
CEDAR FALLS, IOWA.

Markets

At A Glance . . .

MID-CONTINENT: Natural gasoline turns about face.

MID-WESTERN: Low octane gasoline rallies; offerings diminish.

PENNSYLVANIA: Lubes steady; light product prices easier.

EASTERN: Gasoline unsettled; price shading increases.

GULF COAST: Cargo of export gas oil sold; other products quiet.

CALIFORNIA: Four cargoes of kerosine-distillate reported sold.

Mid-Continent

N. P. N. News Bureau

TULSA, Feb. 21.—From oversupply and unsteady prices one week to scarcity and firmer prices the following week, describes the Grade 26-70 natural gasoline market the past 15 days. The reversal was brought about by the switching of production from Grade 26-70 to lower vapor pressure grades.

The change in operations curtailed total natural gasoline production and gave sales managers a product that was more saleable. With low vapor pressure available at attractive prices, jobber buying increased substantially. During the week low vapor pressure prices increased 0.25 to 0.5 cent.

Switch in natural gasoline production halted, temporarily at least, the downward trend of Grade 26-70 prices by balancing supply with demand, manufacturers said. Scarcity of this product for immediate shipment was reported as the week ended. Sellers said prices were firm.

Mid-Continent refined gasoline prices were reported firmer last week as supplies continued to be closely held. Refiners appeared reluctant to sell at current prices, brokers reported, and some were turning down resale inquiries at 0.125 cent under jobber prices. East Texas refiners said they had turned down buying orders for 400 e. p. gasoline at 4.125 cents.

Kerosine was closely held, according to two refiners who were endeavoring to buy in the open market.

Export inquiry for lubricating oil was active. Wax prices were unchanged.

Mid-Western

N. P. N. News Bureau

CHICAGO, Feb. 21.—The most outstanding feature of the Mid-Western market last week was the increasing scarcity of low octane gasoline supplies, marketers reported. Quotations for this grade generally were at 4 to 4.125 cents.

Movement of high octane gasoline continued fair, sellers said, although weather conditions generally were unfavorable to this market. Contract shipments were in good volume, it was said.

Majority of Michigan refiners reported active inquiry throughout the week for straight run and higher octane gasolines. While a few refiners said they were storing some straight run gasoline for spring movement, the majority of refiners reported comparatively small inventories.

Kerosine inquiries were generally reported to be in good number, although a few Chicago marketers stated that the demand was slightly under par for the season. Both Chicago marketers and Michigan refiners indicated that inquiries were for kerosine that could be used as a tractor fuel for plowing. Michigan refiners generally quoted kerosine at 5.5 to 5.55 cents.

Range oil continued to be actively sought in the Chicago region, sellers reported. Scattered reports of lighter demand, however, were occasionally heard.

Eastern

N. P. N. News Bureau

NEW YORK, Feb. 21.—Gasoline markets were unsettled along the eastern seaboard, from Baltimore north, with reports of price shading widespread.

Open market buying was virtually at a standstill, reports of all sellers indicated. While the majority of sellers reported unchanged prices, buyers resisted current quotations and the tendency to shade increased.

Some suppliers expressed the opinion that prices would not hold at current levels for any appreciable length of time, unless the market does an about-face. They based their predictions on the present stock position at most eastern terminals, both major and independent, which they said was burdensome to the extent that a firm offer to buy generally found the soft spot in the market. Another point in their prediction is the drop in the Gulf-North Atlantic boat rate, which in the past month has amounted to nearly 15 cents a barrel.

Boston prices were reduced 0.25 cent during the past week, with reports that the lower prices were being shaded in some instances.

Varied reports were heard concerning gasoline in the New York harbor market. All open market sellers, without exception, said they were quoting unchanged prices. Buyers, on the other hand, generally said that the market was off 0.25 cent, but sales at lower prices could not be confirmed.

N. P. N. Gasoline Index

	Dealer T.w. Cents	Tank Car per gal.
Feb. 21	10.13	5.87
Month ago	10.20	5.96
Year ago	10.54	6.41

Dealer index is an average of "undivided" dealer prices, ex-tax, in 50 cities.

Tank car index is a weighted average of 12 wholesale markets for regular-grade gasoline.

Coastal

N. P. N. News Bureau

NEW YORK, Feb. 21.—The sale of a cargo of approximately 75,000 barrels of 51 diesel index gas oil for export shipment, with lifting in late March or early April at 4.125 cents, f.o.b. the American Gulf, was reported by a major company supplier during the week ended Feb. 19.

This supplier said that gas oil for export shipment still was available at 4 cents at the Gulf, but the buyer paid 0.125 cent higher to obtain the higher diesel index oil.

With one or two exceptions, sellers here generally say that diesel index has reached the point where it now is probably the most important specification factor in the market for export gas oil.

Buyers, they say, in every case will accept the higher diesel index grades in preference to those running under 47, and in many cases are willing to pay a premium to obtain gas oil with high d.i.

Two inquiries for gasoline were reported in the Gulf market last week. No sales were reported, however. Prices reported for gasoline were unchanged.

No activity was noted in other products at the Gulf. In the absence of inquiries prices remained largely nominal at unchanged levels.

Pennsylvania

N. P. N. News Bureau

CLEVELAND, Feb. 21.—Lower district prices for kerosine, fuel oil and minimum 65 octane gasoline were down 0.125 to 0.25 cent in the western Penn-

REFINERY TANK CAR MARKETS

All prices on this page are publisher's opinion of open market quotations or sales, for spot shipment (10 to 15 days). Prices in cents per gallon except heavy fuel oils in dollars per barrel, tank car lots, f.o.b. refineries in districts designated, except where otherwise noted. Inter-refinery and export prices not included, unless so stated in the respective markets. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude. Unless otherwise noted, gasoline octane ratings are determined by C.F.R. Motor method, A.S.T.M. D-357-33T; and lubricating oil specifications determined according to A.S.T.M. methods, unless otherwise noted.

Gasoline *and* Naphtha

Prices Effective	Feb. 21	Feb. 14
OKLAHOMA		
U. S. Motor: (Octane Test L-3)		
62 oct. & below	4.00 – 4.25	4.00 –4.25
63-66 oct.	4.375– 4.50	4.375 –4.50
67-69 oct.	4.625– 4.875	4.625 –4.875
70-72 oct.	4.875– 5.25	4.875 –5.25
60-62, 400 e.p.	(a) 4.00 –4.25	(a) 4.00 –4.25
64-66, 375 e.p.	(a) 5.00 –5.125	(a) 5.00 –5.125
68-70, 350-360 e.p.	(a) 5.125–5.25	(a) 5.125–5.25
WESTERN PENNA.		
Bradford-Warren:		
Motor gasoline:		
Min. 65 oct.	6.75 – 7.25	6.75 – 7.25
Other districts:		
54-56 naphtha	(a)4.50	(a)4.50
Motor gasoline:		
U. S. Motor (58-62°)	4.50 – 4.625	4.50 – 4.625
Min. 65 oct.	6.00 – 6.50	6.25 – 6.50
CENTRAL MICHIGAN (Prices f.o.b. Cent. Mich refinery group basis, for shipment within Michigan. Shipments, however, may originate at plants outside Central group).		
Str.-Run Gasoline	(d) 5.00 –5.50	(d) 5.00 –5.50
U. S. Motor: (Octane Test L-3)		
67-69 octane	7.75	.....
70-72 octane	7.75 – 8.25	.....
64-66 octane gas.	Discontinued	7.75 – 8.00
68-70 octane gas.	Discontinued	7.75 – 8.125
(d) Excluding Detroit shipment.		
CALIFORNIA (3c tax to be added to prices if used in state)		
U. S. Motor:		
54-58, for instate shipment	7.00 – 9.25	7.00 – 9.25
54-58, for outside state shipment	7.75 – 9.00	8.00 – 9.00
58-61, 375-400 e.p., 65 oct. & above	8.75 – 9.75	8.75 – 9.75
(c) **N. TEX.** (For shipment to Texas and N. Mex. destinations; Group 3 prices quoted on northern shipments)		
U. S. Motor: (Octane Test L-3)		
62 oct. & below	4.50 – 4.875	(a) 4.50 –4.875
63-66 oct.	(a) 5.00 –5.375	(a) 5.00 –5.375
67-69 oct.	(a) 5.375–5.75	(a) 5.375–5.75
70-72 oct.	(a) 5.625–6.00	(a) 5.625–6.00
60-62, 400 e.p.	(a) 4.625–4.875	(a) 4.625–4.875
KANSAS (For Kansas destinations only)		
U. S. Motor: (Octane Test L-3)		
62 oct. & below	4.375– 4.50	4.375– 4.50
70-72 oct.	5.375– 5.50	5.375– 5.50
(c) **W. TEX.**		
U. S. Motor: (Octane Test L-3)		
62 oct. & below	4.625– 4.75	4.625– 4.75
63-66 oct.	5.125– 5.25	5.125– 5.25
67-69 oct.	5.50 – 5.625	5.50 – 5.625
70-72 oct.	5.875	5.875
(c) **E. TEX.**		
60-62, 400 e.p.	(a) 4.25	(a) 4.125–4.25
N. LA. (For shipment within La. & into Ark.)		
U. S. Motor: (Octane Test L-3)		
62 oct. & below	4.50	4.50
63-66 oct.	4.625	4.625
67-69 oct.	5.00	5.00
70-72 oct.	5.50	5.50
ARKANSAS (For shipment within Ark. & into La.)		
U. S. Motor: (Octane Test L-3)		
62 octane & below	(b) 4.50	(b) 4.50
67-69 oct.	(b) 5.00	(b) 5.00
OHIO (Quotations of S. O. Ohio. Delivered anywhere in Ohio).		
U. S. Motor	7.625	7.625
Above 65 oct.	7.875	7.875

Natural Gasoline

(Prices are those to blenders on freight basis shown below. Shipments, however, may originate in other Mid-Continent manufacturing districts, such as Panhandle Texas, S. W. Texas or Kans.)

F.O.B. GROUP 3		
Grade 26-70	2.00	2.00
F.O.B. BRECKENRIDGE		
Grade 26-70	1.75	1.75
CALIFORNIA (F.o.b. plants in Los Angeles basin)		
75-85, 350-375 e.p. for blending	7.00 – 7.25	7.00 – 7.25

(a) Nominal.
(b) Only one refiner quoting.
(c) Refiners report they generally receive from 0.25c to 0.5c per gal. more for gasoline & kerosine for local or differential territory shipment.

Kerosine

Prices Effective	Feb. 21	Feb. 14
WESTERN PENNA.		
Bradford-Warren:		
45 w.w.	5.375– 5.625	5.50 – 5.75
46 w.w.	5.50 – 5.75	5.625– 5.875
47 w.w.	5.625– 5.875	5.75 – 6.00
Other districts:		
45 w.w.	5.25 – 5.375	5.375– 5.50
46 w.w.	5.375– 5.50	5.50 – 5.625
47 w.w.	5.50 – 5.625	5.625– 5.75
CENTRAL MIGHIGAN (Prices f.o.b. Cent. Mich. refinery group basis, for shipment within Michigan. Shipments, however, may originate at plants outside Central group.)		
47-49 w.w.	5.25 – 5.55	5.55 – 5.80
OKLAHOMA		
41-43 w.w.	4.125– 4.375	4.125– 4.50
42-44 w.w.	4.25 – 4.50	4.25 – 4.625
KANSAS (For Kansas destinations only).		
41-43 w.w.	4.50 – 4.625	4.50 – 4.625
42-44 w.w.	4.625– 4.75	4.625– 4.75
(c) **N. TEX.** (For shipment to Texas and New Mexico destinations; Group 3 prices quoted on northern shipments).		
41-43 w.w.	4.50	4.50
(c) **E. TEX.**		
41-43 w.w.	(a) 4.125	(a) 4.125
N. LA. (For shipment within La. and into Ark.)		
41-43 w.w.	4.375– 4.50	4.375– 4.50
ARK. (For shipment within Ark. and into La.).		
41-43 w.w.	(b) 4.625	(b) 4.625
CALIFORNIA		
40-43 w.w.	5.50 – 7.00	5.50 – 7.00

Gas *and* Fuel Oils

Prices Effective	Feb. 21	Feb. 14
WESTERN PENNA.		
Bradford-Warren:		
36-40	5.00 – 5.25	5.00 – 5.25
Other districts: (Excluding Pittsburgh District Prices).		
36-40	4.75 – 4.875	4.875– 5.00
CENTRAL MICHIGAN (Prices f.o.b. Cent. Mich. refinery group basis, for shipment within Michigan. Shipments, however, may originate at plants outside Central group.)		
P.W. Distillate	5.00 – 5.50	5.25 – 5.50
No. 3 gas oil, Str.	4.50 – 5.00	4.625– 5.00
U.G.I. gas oil	4.00 – 4.50	4.00 – 4.75
Fuel Oils (Vis. at 100):		
500-700 Vis.	2.25 – 2.75	2.25 – 2.75
300-500 Vis.	2.50 – 3.00	2.50 – 3.00
100-300 Vis.	3.25 – 3.50	3.25 – 3.50
OKLAHOMA		
No. 1 white	4.00 – 4.25	4.125– 4.25
No. 1 straw	(a) 3.875–4.125	4.125
No. 2 straw	3.875– 4.00	3.875– 4.00
No. 2 dark	(a) 3.625–3.75	3.75 – 3.875
U. G. I. gas oil	(a) 3.00 –3.25	*3.00 – 3.25
28-30 zero	3.625	3.625– 3.75
28-30	(b) $1.35	(b) $1.35
24-26	(b) $0.875-$0.925	(b) $0.875-$0.925
18-22	(a) $0.825-$0.875	(a) $0.825-$0.875
14-16	(a) $0.80 -$0.85	(a) $0.80 -$0.85
*Correction: Correct price for Feb. 14 was 3.00-3.25c.		
KANSAS (For Kans. destinations only).		
No. 1 p.w. fuel oil	4.25 – 4.50	4.375– 4.50
10-14 fuel oil	$0.65	$0.675
N. TEX. (For shipment to Texas and N. Mex.; Group 3 prices quoted on northern shipments).		
No. 1 white	(a) 4.25	(a) 4.25
U. G. I. gas oil	2.75 – 2.875	2.75 – 2.875
24-26	$0.825-$0.85	$0.85 -$0.875
18-22	$0.775-$0.80	$0.80 -$0.825
N. LA. (For shipment within La. and into Ark.)		
No. 2	3.625– 3.75	3.625– 3.75
20-24	$1.10 -$1.15	$1.10 -$1.15
16-20	$0.95 -$1.00	$0.95 -$1.00
10-14	$0.80 -$0.85	$0.80 -$0.85
ARK. (For shipment within Ark. and into La.).		
No. 2	(b) 4.00	(b) 4.00
28-30 gas oil, zero	(b) 3.75	(b) 3.75
CALIFORNIA		
San Joaquin Valley:		
Heavy fuel	$0.60 -$0.85	$0.60 -$0.85
Light fuel	$0.85 -$0.95	$0.85 -$0.95
Diesel fuel (per gal.)	3.75 – 5.00	3.75 – 5.00
Stove dist. (per gal.)	4.00 – 7.00	4.00 – 7.00
Los Angeles:		
Heavy fuel	$0.70 –$1.00	$0.70 –$1.00
Light fuel	$0.80 –$1.10	$0.80 –$1.10
Diesel fuel (per gal.)	3.00 – 5.00	3.00 – 5.00
Stove dist. (per gal.)	3.25 – 7.00	3.25 – 7.00

Gas and Fuel Oils (Cont'd)

Prices Effective	Feb. 21	Feb. 14
San Francisco:		
Heavy fuel	$1.05	$1.05
Light fuel	$1.15	$1.15
Diesel fuel (per gal.)	5.50	5.50
Stove dist. (per gal.)	7.50	7.50

Note: All above heavy fuels meet Pacific specification 400; light fuel, spec. 300; Diesel fuels, spec. 200; and stove distillate, spec. 100.

Neutral Oils

WESTERN PENNA.

Viscous Neutrals (*Viscosity at 70° F.*)

200 Vis. (180 at 100°) No. 3 col., 420-425 fl.:		
0 p.t.	20.50 –21.00	20.50 –21.00
10 p.t.	19.50 –20.00	19.50 –20.00
15 p.t.	19.00 –19.50	19.00 –19.50
25 p.t.	17.00 –17.50	17.00 –17.50
180 Vis. (165 at 100) No. 3 col., 410-415 fl.:		
25 p.t.	16.00 –16.50	16.00 –16.50
150 Vis. (143 at 100) No. 3 col., 400-405 fl.:		
0 p.t.	17.50 –18.00	17.50 –18.00
10 p.t.	16.50 –17.00	16.50 –17.00
15 p.t.	16.00 –16.50	16.00 –16.50
25 p.t.	15.00 –15.50	15.00 –15.50

SOUTH TEXAS

Vis. Color		
Pale Oils: (*Vis. at 100° F.; p.t. 0*)		
100 No. 1½-2½	5.00 – 5.50	5.00 – 5.50
200 No. 2-3	6.50 – 7.00	6.50 – 7.00
300 No. 2-3	7.00 – 7.50	7.00 – 7.50
500 No. 2½-3½	8.00 – 8.50	8.00 – 8.50
750 No. 3-4	8.50 – 9.00	8.50 – 9.00
1200 No. 3-4	9.00 – 9.50	9.00 – 9.50
2000 No. 4	9.25 – 9.75	9.25 – 9.75
Red Oils:		
200 No. 5-6	6.50 – 7.00	6.50 – 7.00
300 No. 5-6	7.00 – 7.50	7.00 – 7.50
500 No. 5-6	8.00 – 8.50	8.00 – 8.50
750 No. 5-6	8.50 – 9.00	8.50 – 9.00
1200 No. 5-6	9.00 – 9.50	9.00 – 9.50
2000 No. 5-6	9.25 – 9.75	9.25 – 9.75

Note: South Texas red oil prices shown above cover oils with green cast; blue cast red oils are slightly lower in some cases.

MID-CONTINENT (Vis. at 100° F.; F.o.b. Tulsa basis).

Pale Oils: (0 to 10 P.P.) Vis. Color		
60-85—No. 2	5.50	5.50
86-110—No. 2	6.00	6.00
150—No. 3	9.00	9.00
180—No. 3	10.00	10.00
200—No. 3	10.50	10.50
250—No. 3	11.50	11.50
280—No. 3	12.50	12.50
300—No. 3	13.00	13.00
Red Oils:		
180—No. 5	9.00	9.00
200—No. 5	9.50	9.50
250—No. 5	10.50	10.50
280—No. 5	11.50	11.50
300—No. 5	11.75	11.75

Note: Viscous oils, 15-25 p.p., generally are quoted 0.5c under 0-10 p.p. oils. Non-viscous oils, 15-25 p.p., generally are quoted 0.25c under 0-10 p.p. oils. Viscous oils (150-300 vis.), No. 4 color, generally are quoted 0.5c above No. 5 color oils.

CHICAGO (Vis. at 100° F.)

Pale Oils (c) 0 to 10 p.p.: Vis. Color		
60-85—No. 2	7.25	7.25
86-110—No. 2	7.75	7.75
150—No. 3	10.00	10.00
180—No. 3	11.00	11.00
200—No. 3	11.50	11.50
250—No. 3	12.50	12.50
Red Oils:		
180—No. 5	10.00	10.00
200—No. 5	10.50	10.50
250—No. 5	11.50	11.50
280—No. 5	12.50	12.50
300—No. 5	12.75	12.75

(c) Viscous oils, 15 to 30 p.p. are quoted 0.5c lower, 60-85 and 86-110 No. 2 non-viscous oils, 15 to 30 p.p., are quoted 0.25c lower. To obtain delivered prices in Chicago, add 0.25c per gal.

Cylinder Stocks

MID-CONTINENT (F.o.b. Tulsa basis).

Bright Stocks:		
190-200 Vis. at 210° D	19.00	19.00
150-160 Vis. at 210° D:		
0 to 10 p.p.	16.00	16.00
10 to 25 p.p.	15.00 –15.50	15.00 –15.50
25 to 40 p.p.	15.00	15.00
150-160 vis. at 210° F.	15.00	15.00

one of the WORLD'S largest producers of CRUDE OIL

Long possessed of this world-wide reputation, The Ohio Oil Company has not been content with crude oil production alone, but has forged ahead to a clearly defined leadership in the refining and marketing of crude oil products. Today The Ohio Oil Company is known as one the country's foremost integrated petroleum organizations.

High quality LINCO GASOLINES and MARATHON MOTOR OILS are made at our own strategically located refineries, insuring constant supply to hundreds of jobber and dealer outlets for public demand--a certainty that is growing more and more each year because our dependable products are preferred by motorists everywhere.

The Ohio Oil Company invites jobbers to investigate our Exclusive Territory Franchise opportunities.

Write, Phone or Wire

LINCO GASOLINE

•

MARATHON GASOLINE

•

MARATHON MOTOR OIL

•

LINCO TIRES and TUBES

•

LINCO BATTERIES & ACCESSORIES

MARATHON PRODUCTS BEST IN THE LONG RUN

LINCO

THE OHIO OIL COMPANY

GENERAL OFFICES - - - - FINDLAY, OHIO

ROBINSON, ILLINOIS TULSA, OKLAHOMA FT. WORTH, TEXAS

sylvania refinery market the past week. Wax also was quoted lower throughout the field. Ordinary U. S. Motor gasoline and all grades of lubricating oil were reported fairly steady.

Milder weather together with continued slack industrial demand were blamed by most sellers for the reversal in the kerosine and fuel oil price trend. Last week's recessions were the first break in the upward trend which started early last fall.

Michigan fuel oil also continued to crowd into territory which Pennsylvania refiners had considered as belonging to them in the past. Pennsylvania refiners for the most part, however, said they were not meeting this competition, and reports of an expected increase in activity at Detroit automotive plants next month led many of them to believe that the current situation would be short lived.

Competition from other refinery districts also was blamed for the reduced prices for 65 octane gasoline in the lower field. Open market demand was reported light.

Wax was quoted 0.05 cent a pound lower by several refiners and one or two small-lot sales were reported at 2.10 cent a pound, New York.

Most refiners reported heavy shipments of lubricating oils against contracts but open market demand from jobbers was virtually at a standstill, they said.

Wax

NEW YORK, Feb. 21.—Prices for wax, both for export and domestic shipment continued easy in eastern and Gulf markets the week ended Feb. 19.

Wax buying was said to be spotty with lower prices reported to have stimulated only a nominal amount of new foreign buying, and no increased domestic sales.

Prices for fully refined were relatively well held, with most of the price shading confined to the scale grades.

While reports from abroad were that offerings of white crude scale at under 2 cents were plentiful, American suppliers generally quoted 2.1 cents.

California

N. P. N. News Bureau

LOS ANGELES, Feb. 19.—Deals were reported closed the past week on four cargoes of kerosine-distillate for shipment from California to the Far East over the next eight or nine months. The product was 39 plus gravity, requiring a considerable naphtha cut, and the selling price was understood to be close to 4 cents a gallon.

The inquiry in local markets a week ago for two cargoes of 400 e. p. gasoline, was still hanging fire. Local suppliers continued to be at some variance in their ideas of value for this

(*Continued on page 68*)

Fuel Oil . . . . .

TULSA, Feb. 21.—With the burner oil season almost over, Mid-Continent refiners and northern jobbers alike were reported attempting to keep stocks of light fuel oils at a minimum.

Northern distributors were buying only their immediate needs, according to most refiners. This was evidenced by lighter buying in the open market early last week. Later, when a cold snap settled over the middle west, jobber orders for light fuels failed to increase as some refiners had expected. Slight price recessions—mostly on quotations that had been at the highs of general market price ranges—were reported in several districts.

Heavy fuels were being stored by refiners in many districts, it was reported. Industrial demand was said to be light and railroad consumption below normal.

* * *

NEW YORK, Feb. 21.—The relatively mild weather along the north Atlantic coast has resulted in decreased consumption of heating oils and open market offerings were freer and at lower prices during the week ended Feb. 19.

Prices of kerosine and light fuel oils at New York harbor, Boston and Providence were lowered during the week. These products also were easier in the Philadelphia and Baltimore markets, according to reports.

Occasional reports of lower-priced offerings of industrial fuel oils were heard in some of the larger markets, but general price levels remained unchanged. Movement of industrial oil was spotty, according to reports.

* * *

CHICAGO, Feb. 21.—The good demand for burner fuels generally reported early last week tapered off slightly as the week progressed, Chicago sellers said. Reports of spotty light fuel demand were frequently heard at the end of the week. However, improvement in shipments against contracts was reported by many marketers.

Michigan refiners reported slight easing in p. w. distillate demand when they experienced a few days of spring weather. Majority of refiners, however, reported only small quantities of distillate in storage.

Competition from Michigan fuel was responsible for curtailing the already small local heavy fuel movement, Chicago resale agents reported.

Michigan refiners also reported sluggish heavy fuel movement. However, supposedly authoritative reports of industrial pick-up in Michigan automotive centers in March was responsible for a more optimistic outlook, it was reported.

Pa. Refinery Lubricating Oil Inventory

(Issued as of Feb. 10 by National Petroleum Assoc.)

	Gallons
1. **Raw Long Residuum** (Including all raw long residuum below, and not salable, as 600 fire)	960,310
2. **600 Steam Refined** (Includes all steam refined stock commonly sold or used as 600 and as raw material for bright stocks)	8,099,024
3. **Other Steam Refined** (Not included in 1 and 2 above)	5,763,317
4. **Finished Dewaxed Long Res.**	2,909,123
5. **Bright Stock** (Does not include any material reported in 4, above)	19,580,848
6. **Viscous Neutral,** below 180 vis. but not below 142 vis. @ 100	7,806,271
7. **Viscous Neutral,** 180 vis. @ 100 and above	10,553,701

TANK WAGON MARKETS, HEATING OILS

Prices in Effect Feb. 21, 1938

Following are tank wagon prices of various grades of heating oil at the points shown in various territories. Prices are in cents per gallon.

	No. 1	No. 2	No. 3	No. 4
S. O. NEW JERSEY				
Newark, N. J.	*	7.00	7.00	7.00
Atlantic City, N. J.	*	7.00	7.00	7.00
Baltimore, Md.	8.00	7.00	7.00	7.00
Washington, D. C.	8.50	7.75	7.75	7.75
SOCONY-VACUUM OIL CO. INC. (S. O. New York Division)				
New York City	*	7.50	7.50	7.50
Albany, N. Y.	*	7.50	7.50	7.50
Rochester, N. Y.	*	7.50	7.50	7.50
Boston, Mass.	*	7.00	7.00	7.00
Bangor, Me.	*	8.00	8.00	8.00
Manchester, N. H.	*	7.50	7.50	7.50
Burlington, Vt.	*	8.00	8.00	8.00
Hartford, Conn.	*	7.00	7.00	7.00
New Haven, Conn.	*	7.00	7.00	7.00
Providence, R. I.	*	7.00	7.00	7.00

*Prices for No. 1 fuel in S. O. New Jersey and Socony-Vacuum territories same as for kerosine which see in tank wagon table for various cities: prices change with kerosine.

	No. 1	No. 2	No. 3	No. 4
ATLANTIC REFINING				
Philadelphia, Pa.	7.75	7.00	7.00	7.00
Allentown, Pa.	8.25	7.50	7.50	7.50
Wilmington, Del.	8.25	7.50	7.50	7.50
ATLANTIC REFINING Cont'd				
Springfield, Mass.	9.00	7.50	....	7.50
Worcester, Mass.	9.00	7.50	....	7.50
Hartford, Conn.	9.00	7.50	....	7.50
S. O. OHIO				
Columbus Division and Cleveland	7.50	7.50	7.00	....
City of Lima	8.00	8.00	7.00	....
Rest of Ohio	8.00	8.00	7.50	....

Note: S. O. Ohio prices are for full compartment hose dumps, bucket dumps are 0.5c per gallon higher.

S. O. INDIANA
Stanolex Fuel and Furnace Oils

	No. 1 Fuel	Stanolex Furnace
Chicago	†8.8	7.00
Indianapolis	...	*11.8
Detroit	...	7.1
Milwaukee	8.1	7.4
Minneapolis	7.5	7.5
Sioux City	7.2	7.2
St. Louis	7.5	6.8
Kansas City	6.6	6.6

*Includes state tax of 4c.
†This price applies to 1 to 99 gals. deliveries; 150 gals. and over, 7c.

Note: Small-lot deliveries of light fuel oils range up to 2c higher than above quotations.

REFINERY TANK CAR MARKETS

All prices on this page are publisher's opinion of open market quotations or sales, for spot shipment (10 to 15 days) unless otherwise stated. Prices in cents per gallon, except heavy fuel oils in dollars per barrel, wax and petrolatums in cents per pound in barrels, tank car lots, f.o.b. refineries in districts designated, except where otherwise noted. Inter-refinery and export prices not included unless so stated in the respective markets. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude. Unless otherwise noted, gasoline octane ratings are determined by C.F.R. Motor method, A.S.T.M. D-357-33T; and lubricating oil specifications determined according to A.S.T.M. methods, unless otherwise noted

Cylinder Stocks (cont'd)

Prices Effective	Feb. 21	Feb. 14
Mid-Continent (cont'd)		
120 Vis. at 210° D:		
0 to 10 p.p.	15.125–15.25	15.125–15.25
10 to 25 p.p.	14.50	14.50
25 to 40 p.p.	14.25	14.25
600 S.R. Dark Green	5.00 – 7.50	5.00 – 7.50
600 S.R. Olive Green	7.00 – 9.50	7.00 – 9.50
631 S.R.	(b)12.50	(b)12.50
Black Oil	3.50 – 4.00	3.50 – 4.00
CHICAGO (Viscosity at 210°)		
Unfiltered Steam Refined:		
140	9.00	9.00
160	10.00	10.00
200	11.00	11.00
Bright stocks, 160 vis. at 210. No. 8 color:		
0 to 10 p.p.	17.75	17.75
15 to 25 p.p.	16.75	16.75
30 to 40 p.p.	16.25	16.25
E filtered Cyl. Stock	14.50	14.50

To obtain prices delivered in Chicago, add 0.25c per gal.
(a) Nominal.
(b) Only one refiner quoting.

Prices Effective	Feb. 21	Feb. 14
(f) **WESTERN PENNA.**		
600 S.R. filterable	8.50 – 9.00	8.50 – 9.00
650 S.R.	10.50 –11.50	10.50 –11.50
600 fl.	11.00 –12.00	11.00 –12.00
630 fl.	14.00 –16.00	14.00 –16.00
600 Warren E.	13.00 –13.50	13.00 –13.50

(f) Quotations only.

Bright stock, 145-155 vis. at 210°, 540-550 flash, No. 8 color:		
10 p.t.	18.50 –19.00	18.50 –19.00
15 p.t.	17.50 –18.00	17.50 –18.00
20 p.t.	16.50 –17.00	16.50 –17.00
25 p.t.	15.50 –16.00	15.50 –16.00

Petrolatums

WESTERN PENNA. (Per lb., in barrels, carload lots. In tank cars, 0.5c per lb. less).

Snow White	6.125– 6.25	6.125– 6.25
Lily White	5.125– 5.25	5.125– 5.25
Cream White	4.125– 4.25	4.125– 4.25
Light Amber	2.625– 2.75	2.625– 2.75
Amber	2.375– 2.50	2.375– 2.50
Red	2.00 – 2.25	2.00 – 2.25

Wax

Prices Effective	Feb. 21	Feb. 14
WESTERN PENNA. (Per lb., f.o.b. New York basis.)		
122-124 w.c. scale, A.m.p.	2.10 – 2.15	2.15 – 2.20
124-126 w.c. scale, A.m.p.	2.10 – 2.15	2.15 – 2.20
OKLAHOMA (Per lb. in bbls.; in a few instances, per lb. in burlap bags).		
124-126 w.c. scale, A.m.p.	2.40 – 2.75	2.40 – 2.75
CHICAGO (In bags, carload lots. Melting points are E.M.P. (A.S.T.M.) methods; add 3° F. to convert into A.m.p.)		
Fully refined:		
122-124	4.45	4.45(a)
125-127	4.55	4.55(a)
127-129	4.65	4.65(a)
130-132	**5.10	**5.10(a)
132-134	**5.35	**5.35(a)
135-137	**6.10	**6.10(a)

**Same prices quoted in bags or slabs loose.
(a) Correction: These prices correct for Feb. 14.

MID-WESTERN TANK CAR MARKET

Prices are those made by Chicago sellers, on Group 3 (Oklahoma) freight basis, although shipments may originate in other South-western or Mid-western refining districts

Gasoline

Prices Effective	Feb. 21	Feb. 14
U. S. Motor: (Octane Test L-3)		
62 oct. and below	4.00 – 4.125	3.875– 4.00
63-66 oct.	4.25 – 4.625	4.125– 4.50
67-69 oct.	4.625– 4.75	4.375– 4.75
70-72 oct.	4.625– 5.00	4.625– 5.125
64-66, 375 e.p.	Discontinued	(b)4.75
68-70, 350-360 e.p.	Discontinued	(b)5.25

Kerosine

41-43 w.w.	4.125– 4.375	4.125– 4.375
42-44 w.w.	4.25 – 4.50	4.25 – 4.625

(b) One seller quoting.

Fuel and Gas Oils

Prices Effective	Feb. 21	Feb. 14
Domestic:		
No. 1 p.w.	4.00 – 4.125	4.00 – 4.25
No. 1 straw	3.875– 4.00	3.75 – 4.125
No. 2 straw	3.75 – 3.875	3.625– 3.875
No. 2 dark	3.50 – 3.75	3.50 – 3.75
No. 3	3.50 – 3.75	3.50 – 3.75
No. 4	$1.05 –$1.10	$1.05 –$1.10
No. 5	$0.80 –$0.85	$0.80 –$0.85
Range oil	4.00 – 4.25	4.125– 4.25
Industrial:		
No. 4	$0.95 –$1.10	$0.95 –$1.10
No. 5	$0.75 –$0.85	$0.75 –$0.85

Prices Effective	Feb. 21	Feb. 14
Industrial (cont'd)		
No. 6	$0.525–$0.60	$0.525–$0.60
U. G. I. gas oil	2.875– 3.25	2.875– 3.25

Naphtha and Solvent

Stoddard solvent	6.875	6.875
Cleaners' naphtha	7.375	7.375
V. M. & P. naphtha	7.375	7.375
Mineral spirits	6.375	6.375
Rubber solvent	7.375	7.375
Lacquer diluent	8.375	8.375

DAILY GASOLINE PRICES

Daily range of gasoline prices as reported in PLATT'S OILGRAM (Week Ended Feb. 18, 1938)

U. S. Motor, (Octane Number determined according to L-3 Method in Okla., Texas and Mid-Western Districts):	Feb. 14	Feb. 15	Feb. 16	Feb. 17	Feb. 18
62 octane and below:					
Oklahoma	4.00 – 4.25	4.00 – 4.25	4.00 – 4.25	4.00 – 4.25	4.00 – 4.25
*North Texas	†4.50 – 4.875	†4.50 – 4.875	†4.50 – 4.875	†4.50 – 4.875	†4.50 – 4.875
West Texas	4.625– 4.75	4.625– 4.75	4.625– 4.75	4.625– 4.75	4.625– 4.75
Mid-Western (Group 3 basis)	3.875– 4.00	3.875– 4.125	4.00 – 4.125	4.00 – 4.25	4.00 – 4.125
63-66 octane:					
Oklahoma	4.375– 4.50	4.375– 4.50	4.375– 4.50	4.375– 4.50	4.375– 4.50
*North Texas	†5.00 – 5.375	†5.00 – 5.375	†5.00 – 5.375	†5.00 – 5.375	†5.00 – 5.375
West Texas	5.125– 5.25	5.125– 5.25	5.125– 5.25	5.125– 5.25	5.125– 5.25
Mid-Western (Group 3 basis)	4.125– 4.50	4.25 – 4.625	4.25 – 4.625	4.25 – 4.625	4.25 – 4.625
67-69 octane:					
Oklahoma	4.625– 4.875	4.625– 4.875	4.625– 4.875	4.625– 4.875	4.625– 4.875
*North Texas	†5.375– 5.75	†5.375– 5.75	†5.375– 5.75	†5.375– 5.75	†5.375– 5.75
West Texas	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625	5.50 – 5.625
Mid-Western (Group 3 basis)	4.375– 4.75	4.625– 4.75	4.625– 4.75	4.625– 4.75	4.625– 4.75
70-72 octane:					
Oklahoma	4.875– 5.25	4.875– 5.25	4.875– 5.25	4.875– 5.25	4.875– 5.25
*North Texas	†5.625– 6.00	†5.625– 6.00	†5.625– 6.00	†5.625– 6.00	†5.625– 6.00
West Texas	5.875	5.875	5.875	5.875	5.875
Mid-Western (Group 3 basis)	4.625– 5.125	4.75 – 5.125	4.625– 5.125	4.625– 5.125	4.625– 5.00
Motor Gasoline, 60-64 oct.					
New York harbor	†6.50 – 6.75	†6.50 – 6.75	†6.50 – 6.75	†6.50 – 6.75	†6.50 – 6.75
Philadelphia district	†6.75 – 7.00	†6.75 – 7.00	†6.75 – 7.00	†6.75 – 7.00	†6.75 – 7.00
Baltimore district	†6.75 – 7.25	†6.75	†6.75	†6.75	†6.75
Motor Gasoline, 65 oct. & above:					
New York harbor	†6.75 – 7.00	†6.75 – 7.00	†6.75 – 7.00	†6.75 – 7.00	†6.75 – 7.00
Philadelphia district	†6.75 – 7.00	†6.75 – 7.00	†6.75 – 7.00	†6.75 – 7.00	†6.75 – 7.00
Baltimore district	†7.00 – 7.50	†7.00	†7.00	†7.00	†7.00
U. S. Motor, 58-62°:					
Other districts (Western Penna.)	4.50 – 4.625	4.50 – 4.625	4.50 – 4.625	4.50 – 4.625	4.50 – 4.625
Motor Gasoline, Min. 65 oct.:					
Bradford-Warren (Western Penna.)	6.75 – 7.25	6.75 – 7.25	6.75 – 7.25	6.75 – 7.25	6.75 – 7.25
Other districts (Western Penna.)	6.25 – 6.50	6.25 – 6.50	6.25 – 6.50	6.25 – 6.50	6.00 – 6.50

*For shipment to Texas and New Mexico destinations; Group 3 prices are quoted on northern shipment.
†Nominal.
‡Only one refiner quoting.

TANK WAGON MARKETS

Tank car, tank wagon, dealer, and service station prices for gasoline do not include taxes; *they do, however, include inspection fees as shown in general footnote. Gasoline taxes, shown in separate column, include 1c federal, and state taxes; also city and county taxes as indicated in footnotes. Kerosine tank wagon prices include taxes, where levied, as indicated in footnotes. Discounts to various classes of buyers also are shown in footnotes. These prices in effect Feb. 21, 1938, as posted by principal marketing companies at their headquarters offices, but subject to later correction.*

S. O. New Jersey

Essolene (*Regular Grade*)

	Consumer Tank Car	Dealer T.W.	Gasoline Taxes	Kerosine T.W.
Atlantic City, N. J.	7.25	8.75	4	8.5
Newark, N. J.	7.25	8.75	4	8.5
Annapolis, Md.	8.35	9.85	5	9.5
Baltimore, Md.	7.75	9.25	5	9
Cumberland, Md.	9.15	11.65	5	10
Washington, D. C.	8	9.5	3	9.5
Danville, Va.	8.95	11.45	6	12.9
Norfolk, Va.	7.75	10.25	6	11.5
Petersburg, Va.	8.05	10.55	6	11.7
Richmond, Va.	8.05	10.55	6	11.7
Roanoke, Va.	9.25	11.75	6	12.9
Charleston, W. Va.	8.55	11.05	6	12.6
Parkersburg, W. Va.	7.85	9.35	6	11.2
Wheeling, W. Va.	8.85	10.25	6	12.2
Charlotte, N. C.	9.15	11.65	7	12.6
Hickory, N. C.	9.65	12.15	7	13
Mt. Airy, N. C.	9.45	11.95	7	12.8
Raleigh, N. C.	8.75	11.25	7	12.1
Salisbury, N. C.	9.25	11.75	7	12.7
Charleston, S. C.	7.75	10.25	7	11.1
Columbia, S. C.	8.75	11.25	7	12.1
Spartanburg, S. C.	9.45	11.95	7	12.9

Discount to undivided dealers: Dealer t.w. price less 0.5c per gal.

Price basis to commercial consumers: To contract accounts, purchasing at least one full compartment at a time by hose connection: Effective March 12, 1937, in New Jersey, and March 8 in Maryland, District of Columbia, and in Arlington and Fairfax Counties in Virginia, on yearly purchases: from 2,500 to 100,000 gals., consumer t.w. price at time and place of delivery; 100,000 gals. per year consumer tank car price, plus 0.5c per gal. Generally consumer t.w. price in foregoing states is equivalent of dealer t.w. price, less 0.5c per gal.

Effective May 15, 1937, on Essolene and Esso (by tank wagon) in North and South Carolina, West Virginia and Virginia (except Arlington and Fairfax Counties, which see above), commercial consumers taking deliveries of 50 gals. (West Va. 100 gals.) or more at one time will be billed at the posted consumer t.w. price. Deliveries less than 50 gals. (West Va. 100 gals.) will be billed at 4c per gal. over posted consumer t.w. price. Generally, posted consumer t.w. price will be equivalent to the dealer price less 0.5c per gal.

Kerosine Discount: 1c off t.w. price for 25 gals., or more, under contract thru territory (Baltimore City contract not necessary) except no discount in state of New Jersey.

Socony-Vacuum Oil Co., Inc.

(*S. O. New York Division*)

Socony Mobilgas (*Regular Grade*)

	Consumer Tank Car	"Split" Dealer T.W.	Gasoline Taxes	Kerosine T.W.
Metropolitan N. Y. City: Boroughs of Manhattan, Bronx and Brooklyn (Kings and Queens)	7.5	9.5	*5	8.75
Borough of Richmond (Staten Is.)	7.5	9.5	*5	8.75
Albany, N. Y.	7.5	9.5	5	9
Binghamton, N. Y.	8.7	10.3	5	9
Buffalo, N. Y.	8.04	9	5	7.5
Jamestown, N. Y.	7.78	10.8	5	8.25
Plattsburg, N. Y.	7.9	10.4	5	9.5
Rochester, N. Y.	8.17	10	5	8.5
Syracuse, N. Y.	8.12	9.5	5	9
Danbury, Conn.	7.8	9.8	4	9
Hartford, Conn.	7.6	9.6	4	8.5
New Haven, Conn.	7.5	9.5	4	8
Bangor, Me.	8.2	9.8	5	9.5
Portland, Me.	7.7	9.5	5	8.75
Boston, Mass.	7.5	9	4	8.5
Concord, N. H.	8.2	10.5	5	9.5
Lancaster, N. H.	9.1	11.5	5	10.25
Manchester, N. H.	8	10	5	9
Providence, R. I.	7.5	9.3	4	8.5
Burlington, Vt.	7.9	9.9	5	9.5
Rutland, Vt.	8.2	10.2	5	9

*Plus 2% city sales tax computed at time of each sale.

Discount to undivided dealers: 0.5c less than "split" dealer t.w.

Price basis to commercial consumers: Effective about Nov. 15, 1936 in New York and New England for tank wagon delivery: monthly purchases of 25,000 gals. or over, pay consumer tank car price at point of delivery, plus 0.5c gal.; monthly purchases of 5,000 to 25,000 gals., pay undivided dealer tank wagon price at point of delivery; monthly purchases of less than 5,000 gals., pay divided dealer tank wagon price at point of delivery. Private consumers pay undivided dealer tank wagon price at point of delivery, plus 2c gal.

Atlantic Refining

Atlantic White Flash Gasoline (*Regular Grade*)

	Commercial Tank Car	Dealer T.W.	S.S.	Gasoline Taxes	Kerosine T.W.
Philadelphia, Pa.	6.75	8.25	12	5	10.5
Pittsburgh	8	10	15	5	11
Allentown	7.75	9.25	**	5	11
Erie	8	9.5	**	5	10
Scranton	8	9.5	**	5	11
Altoona	8	10	**	5	11
Harrisburg	7.5	9	**	5	11
Williamsport	8	10	**	5	11
Dover, Del.	...	9	**	5	11
Wilmington	...	9	**	5	11
Boston, Mass.	...	9	**	4	8.5
Springfield, Mass.	...	9.5	**	4	8.5
Worcester, Mass.	...	10.3	**	4	9
Fall River, Mass.	...	8.5	**	4	8.5
Hartford, Conn.	...	9.6	**	4	8.5
New Haven, Conn.	...	9.5	**	4	8
Providence, R. I.	...	9.3	**	4	8.5
Atlantic City, N. J.	...	8.75	**	4	9
Camden, N. J.	...	8.75	**	4	9
Trenton, N. J.	...	8.75	**	4	9
Annapolis, Md.	...	9.85	**	5	9.5
Baltimore, Md.	...	9.25	**	5	9
Hagerstown, Md.	...	10.35	**	5	10
Richmond, Va.	...	10.55	**	6	11.7
Wilmington, N. C.	...	10.35	**	7	11.3
Brunswick, Ga.	...	10	**	7	*13
Jacksonville, Fla.	...	9.5	**	8	10

*Georgia has kerosine tax of 1c per gal., not included in above price.

**Atlantic Refining transferred stations to dealers; no prices available.

Discount to undivided dealers: Dealer t.w. less 0.5c per gal.

Price basis to commercial consumers: in Penna. and Delaware, effective Mar. 11, 1937, on yearly gasoline purchases to contract accounts taking full compartment hose deliveries, using 100,000 gals. or more per year, tank car price plus 0.5c per gal.; consumers taking less than 100,000 gals., undivided dealer price. Consumers under contract and not under contract, taking less than full compartment delivery, and consumers not under contract taking full compartment delivery, get divided dealer price. Consumers taking less than 25 gals., t.w. delivery, get 4c above undivided dealer price.

Discount on kerosine: Effective Oct. 29, 1936, in Pennsylvania and Delaware, 2c per gal. off t.w. price on t.w. deliveries of 25 gals. or more at one time.

S. O. Ohio

Sohio X-70 Gasoline (*Regular Grade*)

	Consumer T.W.	†Divided Dlr.	Gasoline Taxes	Kerosine T.W.
Ohio State-wide	11	10	5	*13
Counties where prices are below statewide:				
Columbiana, Defiance and Pickaway	10.5	9.5	5	....
Franklin, Knox and Paulding	10	9	5	....

Renown Gasoline (*Third Grade*)

Ohio State-wide	10.5	9.5	5	....
Counties where prices are below statewide:				
Columbiana, Defiance and Pickaway	10	9	5	....
Franklin, Knox and Paulding	9.5	8.5	5	....
Counties where prices are above statewide:				
Butler, Clermont, Darke, Greene, Hamilton, Miami, Montgomery, Preble and Warren	11	10	5	....

S. O. Ohio Cont'd

Kerosine Prices

(*Off Statewide Level*)

Kerosine prices are off statewide level in the following counties:

Allen, Auglaize, Champaign, Columbiana, Darke, Geauga, Greene, Hardin, Logan, Mahoning, Mercer, Preble, Putnam, Shelby, Trumbull, Union, Van Wert and Wyandot: *12.5
Paulding: *12
Ashtabula: *11.5
Fayette, Licking, Madison, Pickaway, Portage and Summit: *9.5

†This price also to authorized agents, exclusive of 0.5c rental. Discount to undivided dealers: 0.5c less than divided dealer t.w.

*Kerosine prices include 1c state tax.

Commercial Tank Wagon Q.D.A. to contract accounts: Effective Oct. 20, 1937, thru Ohio (except in 29 counties), on monthly purchases, off posted consumer t.w. price: 0 to 999 gals., 0.5c; 1,000 to 19,999 gals., 1.5c; 20,000 gals. and over, 2.5c. The 29 counties where Q.D.A. differs from statewide are: Allen, Ashtabula, Auglaize, Champaign, Darke, Defiance, Erie, Fulton, Geauga, Hamilton, Hardin, Henry, Logan, Lorain, Lucas, Mahoning, Mercer, Ottawa, Paulding, Putnam, Sandusky, Scioto, Shelby, Trumbull, Union, Van Wert, Washington, Williams and Wood.

Sales tax: Ohio's 3% sales tax, effective Jan. 27, 1935, is added "where assessable, to regular posted prices," S. O. Ohio says.

On kerosine, prices to resellers and commercial consumers are posted generally at 3c per gal. below consumer t.w. price in any quantity, when such prices are on statewide level.

S. O. Kentucky

Crown Gasoline (*Regular Grade*)

	Consumer T.W.	Net Dlr.	Gasoline Taxes	Kerosine T.W.
Covington, Ky.	12.5	10.5	6	11
Lexington, Ky.	13.5	10.5	6	11
Louisville, Ky.	13	10	6	10.5
Paducah, Ky.	13.5	10.5	6	10
Jackson, Miss.	13	10	7	*13
Vicksburg, Miss.	13	10	7	*13
Birmingham, Ala.	14	11	*8	12
Mobile, Ala.	11	8	*9	11
Montgomery, Ala.	13	10	*9	*13
Atlanta, Ga.	14	11	7	*14
Augusta, Ga.	14	11	7	*14
Macon, Ga.	14	11	7	*14
Savannah, Ga.	12.5	9.5	7	*12
Jacksonville, Fla.	12.5	9.5	8	11
Miami, Fla.	12.5	9.5	8	12.5
Pensacola, Fla.	13	10	*9	12
Tampa, Fla.	12.5	9.5	8	10.5

Kyso Gasoline (*Third Grade*)

Covington, Ky.	10.5	8	6	....
Lexington, Ky.	11.5	9	6	....
Louisville, Ky.	11	8.5	6	....
Jackson, Miss.	11.5	9	7	....
Vicksburg, Miss.	11	8.5	7	....
Birmingham, Ala.	12	9.5	*8	....
Mobile, Ala.	8.5	6	*9	....
Montgomery, Ala.	10.5	8	*9	....
Atlanta, Ga.	12	9.5	7	....
Augusta, Ga.	12	9.5	7	....
Macon, Ga.	12	9.5	7	....
Savannah, Ga.	10.5	8	7	....
Pensacola, Fla.	11	8.5	*9	....

Discounts to all tank wagon consumers: Effective Jan. 4, 1937, thru territory, on Crown gasoline, 3c per gal. below consumer t.w. price; on Kyso, 2.5c below, regardless of quantity purchased, per month.

Discounts on kerosine: Prices in Kentucky are net, but in other states subject to 2c discount.

**Taxes*: In the tax column is included these city and county gasoline taxes at the following points: Mobile, 2c city; Birmingham, 1c city; Montgomery, 1c city and 1c county; Pensacola, 1c city. Georgia and Mississippi kerosine prices include 1c state tax. Montgomery kerosine price includes 1c city tax.

Above prices include these inspection fees on both gasoline and kerosine, per gallon, figured on basis of 50 gallons per barrel:

Alabama, 1/40c on gasoline, 1/2c on kerosine; Arkansas, 1/5c per gal. in a single barrel. 1/20c per gal. in bulk; Florida, 1/8c; Illinois, 3/100c; Indiana, 1/5c per gal. in lots up to 25 bbls.; 2/25c per gal. in lots of 25 bbls. or more; Kansas, 1/50c, (3/50c can be charged to meet inspection department expenses); Louisiana, 1/32c; Minnesota, 1/25c; Missouri, 3/100c; Nebraska, 3/100c; Nevada, gasoline, 1/20c; North Carolina, 1/4c; North Dakota, 1/20c; Oklahoma, 2/25c per gal. in lots of more than 50 bbls., 1/5c in lots less than 50 bbls.; South Carolina, 1/8c; South Dakota, 1/10c; Tennessee, 2/5c; and Wisconsin, 1/25c.

Kerosine inspection fee only: Iowa, 3/50c; Michigan, 1/5c per gal.

Above gasoline prices do not include taxes (see general note at top of page)

TANK WAGON MARKETS

Tank car, tank wagon, dealer, and service station prices for gasoline do not include taxes; they do, however, include inspection fees as shown in general footnote. Gasoline taxes, shown in separate column, include 1c federal, and state taxes; also city and county taxes as indicated in footnotes. Kerosine tank wagon prices include taxes, where levied, as indicated in footnotes. Discounts to various classes of buyers also are shown in footnotes. These prices in effect Feb. 21, 1938, as posted by principal marketing companies at their headquarters offices, but subject to later correction.

S. O. Indiana

Red Crown (*Regular Grade*)
Stanolind (*Third Grade*)

	Red Crown Cons. T.W.	Dealer Prices Red Crown T.W.	Stano-lind T.W.	Gaso-line Taxes	Kero-sine T.W.
Chicago, Ill.	11.3	9.3	8.1	4	10.2
Decatur, Ill.	11.3	9.1	7.7	4	10.2
Joliet, Ill.	11.3	9.8	8.1	4	10.2
Peoria, Ill.	11.3	9.8	9.3	4	10.2
Quincy, Ill.	11.1	9.6	8.5	4	10
Indianapolis, Ind.	11.9	10.4	9.2	5	*14.8
Evansville, Ind.	11.8	10.3	8.1	5	*14.7
South Bend, Ind.	12.2	10.7	9.2	5	*13
Detroit, Mich.	11.1	9.6	9.1	4	9.8
Grand Rapids, Mich	12.3	10.8	10.3	4	11
Saginaw, Mich.	12.1	10.6	10.1	4	9.1
Green Bay, Wis.	12	10.5	9.8	5	9.9
Milwaukee, Wis.	11.5	10	9.2	5	10.4
La Crosse, Wis.	11.7	10.2	9.7	5	10.6
Minneapolis-St. Paul	11.7	10.2	9.7	5	10.6
Duluth, Minn.	12	10.5	10	5	10.9
Mankato, Minn.	11.7	10.2	9.7	5	10.6
Des Moines, Ia.	11.1	9.6	7	4	*11
Sioux City, Ia.	11.3	9.8	9.3	4	*13.2
Davenport, Ia.	11.3	9.8	9.3	4	*13.2
Mason City, Ia.	11.4	9.9	9.4	4	*13.3
St. Louis, Mo.	10.9	9.4	7.2	*4	9.8
Kansas City, Mo.	10.6	9.1	8.6	*4	9.5
St. Joseph, Mo.	10.6	9.1	8.6	*4	9.5
Fargo, N. D.	12.7	11.2	10.7	4	11.6
Minot, N. D.	13.9	12.4	11.9	4	12.8
Huron, S. D.	12.1	10.6	10.1	*5	11
Wichita, Kans.	10.1	7	6	4	7

*Taxes: in the tax column is included these city and state gasoline taxes at following points: Kansas City, St. Joseph and St. Louis, 1c city tax; South Dakota, 0.1c sales tax. State Kerosine taxes: Indiana, 4c; Iowa, 3c, all included in above prices.

Discount to commercial consumers: Effective Jan. 1, 1935, thru territory, except Michigan effective Feb. 1, on purchases per month, discount off t.w. prices; all gasolines, 25 to 1,000 gals., at t.w. price; 1,000 gals., or more, 1.5c off t.w. on Ethyl and Red Crown, and 1c on Stanolind (latter effective June 9, 1937). Minimum delivery is 25 gals.

S. O. Nebraska

Standard Red Crown Gasoline (*Regular Grade*)

	T.W.	Dealer	Gaso-line Taxes	Kero-sine T.W.
Omaha, Neb.	11.7	10.2	6	10.5
McCook	11.5	7.5	6	10
Norfolk	12.1	10.6	6	10.9
North Platte	12.5	11	6	11.3
Scottsbluff	13.2	10	6	12

Discounts to commercial consumers: for tank wagon deliveries covered only by Standard Commercial Consumer Contract, effective January 1, 1935.

S. O. Louisiana

Essolene (*Regular Grade*)

	Consumer Tank Car	Dealer T.W.	Gaso-line Taxes	Kero-sine T.W.
Little Rock, Ark.	7.25	9.75	7.5	11.5
Alexandria, La.	7	9.5	8	*10.5
Baton Rouge, La.	6.5	9	8	*12
New Orleans, La.	6.5	9	*10	*12
Lake Charles, La.	7.5	10	8	*12.5
Shreveport, La.	6	8.5	8	*9.5
Lafayette, La.	7.5	10	8	*12.5
Bristol, Tenn.	10.25	11.5	8	14.5
Chattanooga, Tenn.	9	11.5	8	13.5
Knoxville, Tenn.	9.5	12	8	14
Memphis, Tenn.	7.5	10	8	12
Nashville, Tenn.	8.5	11	8	11.5

*New Orleans gasoline tax includes 7c state, 1c federal, and 2c parish tax. Louisiana kerosine prices include 1c state tax; in addition New Orleans has 1c parish tax.

Price basis to dealers: Undivided dealers get dealer price, less 0.5c.

Price basis to commercial consumers: Effective May 15, 1937, thru territory; commercial consumers taking 50 gals. or more at one time will be billed at posted consumer t.w. price; those taking less than 50 gals. at one time will be billed at 4c per gal. over posted consumer t.w. price. Generally, the posted consumer t.w. price will be equivalent to the dealer price less 0.5c per gal.

Humble Oil & Refining Co.

Humble Motor Fuel (*Regular Grade*)

	*T.W.	S.S.	Gaso-line Taxes	Kero-sine T.W.
Dallas, Tex.	9	13	5	8
Ft. Worth, Tex.	9	13	5	8
Houston, Tex.	9.5	13.5	5	8
San Antonio, Tex.	8.5	12.5	5	8

U. S. Motor Gasoline (*Third Grade*)

Dallas, Tex.	7	10	5
Ft. Worth, Tex.	7.5	10	5
Houston, Tex.	8.5	11.5	5
San Antonio, Tex.	7.5	10.5	5

*Price is t.w. price to all classes of dealers and consumers.

Price basis to "open" dealers: discount off posted retail price: when posted retail price, including all taxes on Esso motor fuel is: 19.1c per gal. and above, discount is 3.5c; 19c to 18.1c, 3c, and 18c and below, 2.5c. Humble motor fuel, 17.1c and above, 3.5c; 17 to 16.1c, 3c; and 16c and below, 2.5c; U. S. motor fuel, 15.1c and above, 2.5c; 15 to 14.1c, 2c; and 14c and below, 1.5c.

Continental Oil

Conoco Bronze (*Regular Grade*)
Demand (*Third Grade*)

	—Dealer Prices— Conoco Bronze	Demand	Gaso-line Taxes	Kero-sine T.W.
Denver, Colo.	10	9	5	11.5
Grand Junc., Colo.	14	13	5	15
Pueblo, Colo.	8	7	5	10.5
Casper, Wyo.	12	11	5	11.5
Cheyenne, Wyo.	11	7	5	13
Billings, Mont.	13.5	12	6	15.5
Butte, Mont.	13.5	10.5	6	15.5
Great Falls, Mont.	13.5	12.5	6	15.5
Helena, Mont.	13.5	12.5	6	15.5
Salt Lake City, Utah	14.5	11.5	5	16
Boise, Ida.	15.5	13.5	6	18
Twin Falls, Ida.	15	14	6	18
Albuquerque, N. M.	11	10	†6.5	12
Roswell, N. M.	11	8.5	†6.5	10.5
Santa Fe, N. M.	12	9.5	*7	12
Muskogee, Okla.	9.5	8	5	7
Oklahoma City, Okla.	9	6	5	8
Tulsa, Okla.	9	6	5	6
Ft. Smith, Ark.	9.25	8.5	5	8
Little Rock, Ark.	9.75	7.625	7.5	9.5
Texarkana, Ark.	9	6	5	8.5

†Includes city tax of 0.5c.
*Includes 1c city tax.

S. O. California

Standard Gasoline (*Regular Grade*)

	T.W.	S.S.	Gaso-line Taxes	Kero-sine T.W.
San Francisco, Cal.	13.5	14.5	4	11.5
Los Angeles, Cal.	13	14	4	10
Fresno, Cal.	14.5	15.5	4	12.5
Phoenix, Ariz.	15	16	6	†17
Reno, Nev.	15	16	5	13
Portland, Ore.	14	15	6	13.5
Seattle, Wash.	14	15	6	13.5
Spokane, Wash.	16.5	17.5	6	16
Tacoma, Wash.	14	15	6	13.5

Flight Gasoline (*Third Grade*)

San Francisco, Cal.	12	13	4	....
Los Angeles, Cal.	11.5	12.5	4	....
Fresno, Cal.	13	14	4	....
Reno, Nev.	13.5	14.5	5	....
Phoenix, Ariz.	13.5	14.5	6	....
Portland, Ore.	12.5	13.5	6	....
Seattle, Wash.	12.5	13.5	6	....
Spokane, Wash.	15	16	6	....
Tacoma, Wash.	12.5	13.5	6	....

†Includes 5c state tax.

Discount to dealers: on gasoline, off t.w. price on Standard Ethyl and Standard Gasoline, to 100% dealers, 3c; to split dealers, 2c; on Flight gasoline, both 100% and split dealers, 2c.

On Stanavo Aviation Gasoline, to all classes of dealers, 3c off t.w.

To commercial consumers: off tank wagon price: on single deliveries of 40 gallons and over. Stanavo Aviation, Standard Ethyl and Standard Gasolines, 3c. Flight Gasoline, 2c per gallon. Tank wagon delivery, less than 40 gals., 1c per gal. above posted t.w. price.

On kerosine 3c off t.w. price: plant deliveries to jobbers, 2.5c below t.w.

Canada

PRICES OF IMPERIAL OIL LTD.

Per Imperial Gallon, which is 1.2 U. S. Gallons

3-Star Imperial Gasoline (*Regular Grade*)

	T.W.	Gasoline Taxes	Kero-sine T.W.
Hamilton, Ont.	16	6	17
Toronto, Ont.	16	6	17
Brandon, Man.	21.1	7	22.3
Winnipeg, Man.	20.5	7	20.7
Regina, Sask.	20	7	22
Saskatoon, Sask.	22.8	7	24.8
Edmonton, Alta.	19.5	7	21.5
Calgary, Alta.	17	7	19
Vancouver, B. C.	16	7	23
Montreal, Que.	15	6	17.5
St. John, N. B.	16	8	18.5
Halifax, N. S.	16	8	18.5

Discounts to undivided dealers, 1c off t.w. price, except Maritime Provinces where undivided dealers pay t.w. price. Divided dealers pay t.w. price, thru territory.

Aviation Gasoline

Following are tank car and/or tank wagon prices, as indicated, of aviation gasoline in principal marketing territories (Stanavo Aviation Gasoline in all territories except where otherwise noted).

S. O. NEW JERSEY

	*Ethyl T.C.	Tank Car	T.W.
Bayonne, N. J.	19.5	9.5	12.5
Baltimore, Md.	....	10	13
Washington, D. C.	....	....	13.5
Richmond, Va.	....	....	14.7
Greensboro, N. C.	....	....	15.7
Raleigh, N. C.	....	....	17.6
Charleston, W. Va.	....	....	12.2

*This is Stanavo Ethyl Aviation Gasoline, 100 octane number, tank car price.

COLONIAL BEACON OIL CO.

	T.W.
Brooklyn, N. Y.	12.8
Buffalo, N. Y.	14.5
Boston, Mass.	15

S. O. PENNSYLVANIA

Philadelphia, Pa.	13.6
Pittsburgh, Pa.	14.4

S. O. LOUISIANA

New Orleans, La.	13.3
Shreveport, La.	13.6

Prices in above four territories are on a 74 octane grade aviation gasoline except where otherwise noted. An 80 octane product generally brings 0.5c premium and an 87 octane product, 1.5c premium over the 74 octane grade.

Note: S.a. prices in above four territories are generally 6c over t.w. prices. Above t.w. prices are net, with no discounts allowed for quantity purchases. T.w. prices are generally tank car price, plus freight, plus 2.5c per gal.

S. O. OHIO
Thru Ohio
Stanavo Ethyl Aviation

	Consumer T.W.	Gasoline Taxes
73 octane	15.5	5
80 octane	16.5	5
87 octane	17.5	5

Discounts: For delivery on contract to hangar operators and resellers: 2c below consumer posted t.w. price, shown above.

S. O. INDIANA
Stanavo Ethyl Aviation Gasoline,
73 Octane Number

Chicago, Ill.	14.6	4
Detroit, Mich.	16.1	4
Milwaukee, Wis.	14.8	5
Minneapolis, Minn.	15	5
St. Louis, Mo.	14.2	3
Kansas City, Mo.	13.9	*4
Fargo, N. D.	16	4
Huron, S. D.	15.4	5

*Includes 1c city tax.

HUMBLE OIL & REFINING CO.

	Tank Car
Baytown, Tex.	8.5

CONTINENTAL OIL CO.
Conoco Special Gasoline

	Dealer	Gasoline Taxes
Denver, Colo.	13	5
Cheyenne, Wyo.	15	5
Helena, Mont.	16.5	6
Salt Lake City, Utah	17.5	5
Albuquerque, N. M.	14	*6.5

*Includes city tax of 0.5c.

S. O. CALIFORNIA

	T.W.	
Phoenix, Ariz.	17	6
Los Angeles, Cal.	15	4
San Francisco, Cal.	15.5	4
Reno, Nev.	17	5
Portland, Ore.	16	6
Seattle, Wash.	16	6
Spokane, Wash.	18.5	6

Note: For discounts, etc., see note under Standard and Flight gasoline above.

Above gasoline prices do not include taxes (see general note at top of page)

TANK WAGON MARKETS

Tank car, tank wagon, dealer, and service station prices for gasoline do not include taxes; they do, however, include inspection fees as shown in general footnote. Gasoline taxes, shown in separate column, include 1c federal, and state taxes; also city and county taxes as indicated in footnotes. Kerosine tank wagon prices include taxes, where levied, as indicated in footnotes. Discounts to various classes of buyers also are shown in footnotes. These prices in effect Feb. 21, 1938, as posted by principal marketing companies at their headquarters offices, but subject to later correction.

Naphtha (In Tank Wagon)

S. O. NEW JERSEY

Posted Tank Wagon Prices

	Mineral Spirits	V.M.&P.
Newark, N. J.	11.5	15.5
Baltimore, Md.	15.5	....
Washington, D. C.	15	....

Discounts: Buyers taking following quantities, at one time, get these discounts: Newark, 2c per gal. on 200 gals. or more; less than 200 gals., 0.5c higher price. Baltimore 2c off on 25 to 100 gals. and 3c on over 100 gals. Washington, 2c off to contract buyers.

SOCONY-VACUUM OIL CO.

Buffalo, N. Y.	13	14
New York City	9.5	11.5
Rochester, N. Y.	13	15
Syracuse, N. Y.	14	15
Boston, Mass.	13.5	14
Bridgeport, Conn.	12.5	14
Hartford, Conn.	12	13.5
Providence, R. I.	13.5	14.5

ATLANTIC REFINING CO.

Philadelphia, Pa.	11.5	12.5
Lancaster, Pa.	13	14
Pittsburgh, Pa.	12.5	14.5

Note: Prices for Mineral Spirits also apply to Stoddard Solvent; and prices for V.M.&P. Naphtha apply also to Light Cleaners Naphtha.

S. O. OHIO

	S.R. Solvent	V.M.&P. Naphtha
Thru Ohio	13.25	13.75

Note: V.M.&P. Naphtha prices also apply on Dry Cleaners naphtha and special Varnolene; Varnolene and Sohio Solvent 0.5c below these prices. Discounts to contract consumers, off t.w. price: 300 to 999 gals., 0.5c; 1,000 to 2,499 gals., 0.75c; 2,500 to 4,999 gals., 1c; 5,000 or more gals., 1.5c.

S. O. INDIANA

(Prices include state and federal taxes)

	Oleum Spirits	V.M.&P. Naphtha	Stanisol
Chicago, Ill.	15.9	16.2	15.6
Detroit, Mich.	19.3	18.3	19.4
Kansas City, Mo.	14.4	15.4	14.4
St. Louis, Mo.	14.7	15.7	14.6
Milwaukee, Wis.	19.3	20.3	19.3
Minneapolis, Minn.	19.5	20.5	18.1

Note: Prices for V. M. & P. apply also to Light Cleaners Naphtha. All prices, with exception of Missouri points, include state tax. Prices shown are base prices, before discounts.

Naphtha (In Tank Cars)

In Tank Cars (F. o. b. refinery or seaboard terminal except Ohio, delivered price.)

	V.M.&P. Naphtha	Solvent
Baltimore	10.5	9.5
New York Harbor	10	9
Philadelphia district	10.5	9
Boston	10.5	9.5
Providence	10.5	9.5
Ohio points, delivered	9.375	*8.50

*This is on rubber solvent.

Note: In Ohio, prices on D.C. naphtha and special Varnolene are same as V.M.&P.; on Varnolene and Sohio Solvent, prices are 0.5c less than on V.M.&P.

Latest Changes

From Feb. 15 to Feb. 21 inclusive. Dates and amounts of changes shown. See table for full current prices.

Continental Oil—Conoco Bronze:

Dealer price cut 0.5c, Ft. Smith, Feb. 16.

Corrections

Notation of amount of change and dates not previously shown in table. Table in this issue is corrected to show these changes.

S. O. Louisiana—Essolene:

Dealer t. w. shown incorrectly at 10.25c, Memphis, since Jan. 19 issue. Correct price should have been 10.75c, up to Feb. 15.

S. O. Indiana—Stanolind:

Dealer price cut 0.5c, Indianapolis, Feb. 12.

Kerosine:

Cut 1.5c, Wichita, Feb. 12.

The Case Against

(Continued from page 59)

to as "nuisance" taxes, should be removed as rapidly as economic conditions would permit. On that same date both the Vinson Sub-Committee and the Under Secretary announced that the first move toward this objective was being made with the removal of 10 of these taxes, which were considered the most inequitable and unsound of all these levies.

The imposition of a new special excise "nuisance" tax upon a commodity not heretofore taxed would clearly be inconsistent with this position, and would unquestionably nullify much of the excellent work already accomplished by the Vinson Sub-Committee and the Treasury Department in simplifying and co-ordinating the Federal tax system.

Summary

The facts that have been cited show clearly that any bill to impose a Federal tax on fuel oil used for heating and the generation of power should not be adopted because:

1. It would further retard economic recovery.

2. It would place American ship owners at a serious competitive disadvantage, and would drive fuel oil business to foreign shores.

3. It would cause further financial difficulty to the railroads, two-thirds of which are now in receivership.

4. It would add $21.00 to the annual fuel bill of each of the more than 1,350,000 householders who use oil to heat their homes.

5. It would be an excessive tax because the proposed rate is equivalent to a sales tax of 15 to 50 per cent.

6. It is inconsistent with the Federal government's attempt to remodel the Federal tax structure along more equitable lines.

Clinton Crude Prices Posted

TULSA, Feb. 15.—Stanolind Crude Oil Purchasing Co. announced Feb. 15 that, retroactive to Feb. 1, it had posted prices in the Clinton field, in Harris county, Gulf Coastal Texas, ranging from $0.95 for below 21 gravity, to $1.41 for 40 and above, the same price and gravity schedule paid by Humble in Gulf Coast fields.

WPA Road Accomplishments

WASHINGTON — Accomplishments of the Works Progress Administration during approximately two years of operation are summarized in a report just made public, include:

43,870 miles of highways, roads and streets, with repairs and improvements covering 146,901 miles.

19,272 new bridge and 13,166 repaired.

60,846,092 linear feet, or more than 11,500 miles of roadside drainage ditches, with 167,756,154 linear feet, or approximately 31,772 miles, repaired.

Minnesota Tax Reports

MINNEAPOLIS—The Northwest Petroleum Assn. bulletin informs oil men that the Minnesota unemployment compensation division has issued a regulation changing reports to a quarterly basis.

In the last quarter of 1937 monthly reports were required. Now the division calls for the first 1938 report to be filed not later than April 30, covering the 1938 first quarter.

The rate is 2.7 per cent of 1938 payrolls applied to all employes.

California

(Continued from page 64)

and other grades of motor fuel for offshore movement.

Quotations on tank car and truck and trailer movement of gasoline, by independent suppliers in the Los Angeles Basin, were described as "easy" by observers. Several plants offered a rack price of 7.5 cents, ex all tax, on competitive third-grade brands. A San Joaquin Valley plant was reported delivering truck and trailer lots to service stations in the "Basin" at an ex-tax figure of 7.75 cents.

An increase in 12.5 and 12.9 cent-a-gallon retail prices was reported in the Los Angeles area. Retail prices on major and large independent third-grade brands in this territory remained at 16.5 cents.

English Oil Survey

WASHINGTON—An oil and mineral survey of an area of about 500 square miles in North Lincolnshire, England, has been started, and is expected to continue about 6 months. The region geologically is one of deep-lying coal beds, and very little oil or mineral prospecting has been done in it, although some years ago a trace of petroleum was found mixed with water, believed to have seeped through a geological fault in the strata.

It is believed, according to information received by the Commerce Department from its Hull, England, office, that oil in commercial quantities may be struck in the vicinity of the coal beds, oil which may have formed pools by leakage from the strata through geological shiftings known to have occurred, although it will be necessary to bore at least 6000 feet to reach them.

SEABOARD MARKETS, EXPORT AND COASTWISE

All prices on this page are publisher's opinion of open market quotations or sales, for spot shipment (10 to 15 days). In cargo markets, spot shipment is 90 days. Prices in cents per gallon, except heavy fuel oil in dollars per barrel, in tank car lots, f.o.b. refineries or seaboard terminals in districts designated, unless otherwise noted. Federal, state or municipal taxes not included. Prices quoted apply on products made from legally produced crude. Unless otherwise noted, gasoline octane ratings are determined by C.F.R. Motor method, A.S.T.M.D-357-33T; and lubricating oil specifications determined according to A.S.T.M. methods, unless otherwise noted.

Eastern Domestic

(Inter-refinery and export prices not included.)

MOTOR GASOLINE

Prices Effective	Feb. 21	
District:	(a)60-64 Oct.	(a)65 Oct. & Above
N. Y. harbor	6.50	6.75
(b)N.Y.harbor	6.25	6.50
Philadelphia	6.75	6.75
Baltimore	6.75	7.00
Norfolk	7.00 – 7.25	7.25 – 7.50
Wilmington, N. C.	7.00 – 7.25	7.25 – 7.50
Charleston, S. C.	7.00 – 7.25	7.25 – 7.50
Savannah	7.00 – 7.25	7.25 – 7.50
Jacksonville	7.00 – 7.25	7.25 – 7.50
Portland	7.00	7.25
Boston	6.50 – 6.75	6.75 – 7.00
Providence	6.75	7.00

(a) Prices are nominal. (b) Barge lots.

WATER WHITE KEROSINE

District:			
N. Y. harbor	6.00	Charleston	6.00
(b)N. Y. harbor	5.75 –5.875	Savannah	5.75
Philadelphia	6.00 –6.25	Jacksonville	5.75
Baltimore	6.00	Portland	6.75
Norfolk	6.00	Boston	6.15–6.40
Wilmington, N.C.	6.00	Providence	6.15–6.40

(b) Barge ots.

(c)FUEL OILS

	N. Y. harb.	N. Y. harb. barges
No. 1	6.00	5.75 – 5.875
Nos. 2-3	5.00	4.75 – 4.875
No. 4	5.00	4.75 – 4.875
No. 5	$1.45 – 1.55	
No. 6	$1.25	

	Phila. dist.	Balt. dist.
No. 1	6.00 – 6.25	6.00
Nos. 2-3	5.00 – 5.25	5.00
No. 4	4.75 – 5.25	5.00
No. 5	$1.45 –$1.55	$1.45–$1.55
No. 6	$1.25	$1.25

	Bost. dist.	Prov. dist.
No. 1	6.15 – 6.40	6.15 – 6.40
Nos. 2-3	5.15 – 5.40	5.15 – 5.40
No. 4	5.15 – 5.40	5.15 – 5.40
No. 5	$1.45–$1.55	
No. 6	$1.25	

(c) Fuel oils meet specifications of U. S. Commercial Standards CS12-35.

District:	(b)Bunker C Fuel	(b)Diesel Oil
N. Y. harbor	(e)$1.25	(d)$2.10
Philadelphia	(e)$1.25	(e)$2.10
Baltimore	(e)$1.25	(d)$2.10
Norfolk	(c)$1.25	$2.10
Charleston	$1.20	$2.10
Savannah	(c)$1.20	$2.205
Jacksonville	(c)$1.20	$2.205
Tampa	(c)$1.15	$2.205
Portland	$1.35	$2.25
Boston	(e)$1.25	(d)$2.20
Providence	$1.25	$2.10

(b) In ship's bunkers.
(c) For barging add 5c per bbl.
(d) For barging add 6.5c to 7.5c per bbl.
(e) For barging add 5c to 6c per bbl.

	Gas Oil 28-34 Gravity	Diesel Oil Shore Plants
N. Y. harbor	5.25	5.25
Philadelphia dist.	5.00	....
Baltimore dist.	5.25	....
Norfolk dist.	5.25	....
Savannah dist.	....	5.25
Jacksonville dist.	....	5.25

Pacific Export

(Quotations are at seaboard, Los Angeles, in cargo lots, cents per gal., except where otherwise noted.)

Prices Effective	Feb. 21	Feb. 14
U. S. Motor, under 65 oct.	5.50 – 5.75	5.50 – 5.75
400 e.p. blend, under 65 oct.	5.75 – 6.00	5.75 – 6.00
400 e.p. blend 65 oct. & above	6.00 – 6.25	6.00 – 6.25
(b)38-40 w.w.kerosine	4.75 – 5.00	4.75 – 5.00
41-43 w.w. kerosine	5.00 – 5.50	5.00 – 5.50
44 w.w. kerosine	5.50 – 5.75	5.50 – 5.75

(b)150 fire point.

Prices Effective	Feb. 21	Feb. 14
In Cargo lots, per bbl.		
Diesel fuel, 24° & above	$1.45 –$1.50	$1.45 –$1.50
Diesel fuel, under 24°	$1.40 –$1.45	$1.40 –$1.45
(b)30-34 diesel(gas oil)	$1.55 –$1.65	$1.55 –$1.65
(c)Grade C fuel oil	$0.85 –$0.95	$0.85 –$0.90

Note: For San Francisco cargo prices, add 5c per bbl. to above cargo prices.

In Ships' Bunkers, or deep tank lots, per bbl.:		
(b)Diesel fuel oil	$1.625–$1.65	$1.625–$1.65
(c)Grade C fuel oil	$0.975–$1.00	$0.975–$1.00

(b) Pacific specification 200. (c) Pacific specification 400.

Cased Goods: (Per case)		
U. S. Motor	$1.45 –$1.575	$1.45 –$1.575
400 e.p. blend, under 65 octane	$1.55 –$1.65	$1.55 –$1.65
400 e.p. blend, 65 oct. & above	$1.65 –$1.75	$1.65 –$1.75
(b)40-43 w.w. kerosine	$1.35 –$1.45	$1.35 –$1.45
Kerosine, p.w.	$1.30 –$1.40	$1.30 –$1.40

(b)150 fire point.

New York Export

(Prices in cents per gal. in bbls. F.a.s. New York)

CYLINDER OILS (Pennsylvania Products)

Bright stock:		
Light, 25 p.t.	23.00 –23.50	23.00 –23.50
Dark, 25 p.t.	22.50 –23.00	22.50 –23.00
Neutral oil:		
200 3 color, 25 p.t.	24.50 –25.00	24.50 –25.00
150 3 color, 25 p.t.	22.50 –23.00	22.50 –23.00
600 Warren E filtered	20.50 –21.00	20.50 –21.00
600 s.r., unfiltered	16.00 –16.50	16.00 –16.50
650 s.r., unfiltered	18.00 –18.50	18.00 –18.50
600 fl., s.r.	18.50 –19.00	18.50 –19.00
630 fl., s.r.	21.50 –22.00	21.50 –22.00

Wax, Domestic *and* Export

(Prices in cents per lb. Tests made by A. S. T. M. methods. Melting points shown below, however, are A. M. P., 3° higher than A. S. T. M. (E.M.P.) melting points. Export prices are f.a.s. carload lots. Domestic prices are f.o.b. refineries in New York and New Orleans districts, in bags, carload lots, with 0.2c discount allowed for shipment in bulk. Scale, solid and fully refined, slabs in bags.)

Prices Effective	Feb. 21	
	New York	
	Domestic	Export
124-6 Y.C. scale	2.00 – 2.10	2.00 – 2.10
122-4 W.C. scale	2.05 – 2.15	2.05 – 2.15
124-6 W.C. scale	2.05 – 2.15	2.05 – 2.15
123-5 Fully rfd.	4.20	3.75
125-7 Fully rfd.	4.35	3.875
128-30 Fully rfd.	4.45	4.125
130-2 Fully rfd.	4.55	4.375
133-5 Fully rfd.	(a)5.00	4.875
135-7 Fully rfd.	(a)5.25	5.125
	New Orleans	
	Domestic	Export
124-6 Y.C. scale	2.00 – 2.10	2.00 – 2.10
122-4 W.C. scale	2.05 – 2.15	2.05 – 2.15
124-6 W.C. scale	2.05 – 2.15	2.05 – 2.15
123-5 Fully rfd.	4.20	3.75
125-7 Fully rfd.	4.35	3.875
128-30 Fully rfd.	4.45	4.125
130-2 Fully rfd.	4.55	4.375
133-5 Fully rfd.	(a)5.00	4.875

(b) Shipment either in bags or in bulk.

Gulf Coast

(Prices are f.o.b. ship at Gulf oil terminals representing opinions of traders, except prices specified to the contrary. Prices cover bulk shipments of 20,000 bbls. or more, unless otherwise noted.)

Prices Effective	Feb. 21	Feb. 14
For Domestic shipment:		
MOTOR GASOLINE		
59 oct. & below	(a) 5.00 –5.125	(a)5.00 –5.125
60-64 oct. number	(a) 5.25 –5.375	(a)5.25 –5.375
65 oct. & above	5.50 – 5.75	5.50 –5.75
FUEL OILS		
No. 1	4.75 – 5.00	4.75 – 5.00
No. 2	4.00 – 4.125	4.00 – 4.25
KEROSINE		
41-43 w w	4.75 – 5.00	4.75 – 5.00
For Export Shipment:		
GASOLINE		
U. S. Motor	4.875– 5.00	4.875– 5.00
60-62, 400 e.p.	4.875– 5.00	4.875– 5.00
61-63, 390 e.p.	5.00 – 5.125	5.00 – 5.125
64-66, 375 e.p.	5.00 – 5.125	5.00 – 5.125
KEROSINE		
44 w.w.	(a) 4.875–5.00	(a) 4.875–5.00
41-43 w.w.	4.75 – 5.00	4.75 – 5.00
41-43 p.w.	4.75 – 4.875	4.75 – 4.875

(a) Nominal.

Prices Effective	Feb. 21	Feb. 14
GAS AND BUNKER OILS		
For Domestic and/or Export Shipment		
(b)26-30 translucent gas oil	4.00 – 4.125	4.00 – 4.25
(b)30 plus translucent gas oil	4.00 – 4.125	4.00 – 4.25
(b)30 plus transparent gas oil	4.00 – 4.125	4.00 – 4.25
Diesel Oil Ship's bkrs.	(c)$1.90	(c)$1.90
Grade C bunker oil for ship's bunkers	(c)$0.95	(c)$0.95
Grade C bunker oil, in cargoes	$0.80	$0.80

(b) Less than ½ of 1% sulphur. (c) Barging 5c bbl. additional at some Gulf ports.

MEXICAN CRUDE AND BUNKER OILS

(F.o.b. Steamer, Tampico)

Heavy Panuco crude, taxes to be paid	(a) $0.88–$0.90	(a) $0.88–$0.90
Grade C bunker oil, ship's bunkers, taxes paid	$0.95	$0.95

(a) Nominal.

MID-CONTINENT LUBRICATING OILS

(Prices in cents per gal. for export shipment, f.o.b. Gulf in bulk, f.a.s. Gulf in bbls.)

	Feb. 21	
190-200 vis. D 210 brt. stock	(b)Barrels 24.00 –25.00	Bulk 18.00 –20.50
150-160 vis. D 210 brt. stock:		
0-10 p.p.	20.00 –20.50	14.00 –14.50
10-25 p.p.	20.00	13.50 –14.00
150-160 vis. E 210 brt. stock	19.50 –20.00	13.50
120 vis. D 210 brt. stock:	19.50 –20.00	13.50

(b) Second hand barrels.

	Feb. 21	Feb. 14
180 vis. No. 3 color neutral:		
0-10 p.p.	10.75 –11.00	10.75 –11.00
15-30 p.p.	10.25 –10.50	10.25 –10.50
200 vis. No. 3 color neutral:		
0-10 p.p.	11.25 –11.50	11.25 –11.50
15-30 p.p.	10.75 –11.00	10.75 –11.00
600 s.r. olive green	9.00 –11.25	9.00 –11.25
600 s.r. dark green	7.00 – 9.25	7.00 – 9.25

SOUTH TEXAS LUBRICATING OILS

(Vis. at 100° cold test 0, bulk export shipment, f.o.b Gulf oil terminals.)

Unfiltered Pale Oils: Vis. Color		
100 No. 3	5.50	5.50
200 No. 3	7.25	7.25
300 No. 3	7.75	7.75
500 No. 3½	8.75	8.75
750 No. 4	9.25	9.25
1200 No. 4	9.75	9.75
2000 No. 4	10.00 –10.25	10.00 –10.25
Red Oils: Vis. Color		
100 No. 5-6	5.50	5.50
200 No. 5-6	7.25	7.25
300 No. 5-6	7.75	7.75
500 No. 5-6	8.75	8.75
750 No. 5-6	9.25	9.25
1200 No. 5-6	9.75	9.75
2000 No. 5-6	10.00 –10.25	10.00 –10.25

Note: Red oil prices shown above cover oils with green cast; prices for blue cast red oils are slightly lower in some cases.

Tanker Rates

(Approximate tanker freight rates to Continental ports, in shillings per ton of 2240 lbs., British sterling; to U. S. ports in cents per bbl.)

Rates Effective Feb. 21

	Crude &/or Fuel		Refined Oil &/or Spirits	
	Last Paid	Owners Ask	Last Paid	Owners Ask
Gulf-U.K. /Cont.(b)	24/6	24/6-25/6	25/	26/-28/
Aruba-U.K. /Cont.(b)		21/-23/	21/6-22/6	21/6 22/6-23/6
Gulf-N. Atlantic (c) (not E. of N.Y.): Hvy. Crude & Fuel, (10 to 19.9 gravity)	31c	28-29c	....	....
Light Crude, (30 Grav. or Lighter)	31c	28-29c	....	....
Gasoline	....	....	(d)	24c
Kerosine	....	....	(d)	25c
Light Fuel	....	....	25c	26c

(a) Nominal.
(b) Continental ports in range between Bordeaux and Hamburg, both inclusive.
(c) Venezuela loading same rate: Tampico 2c to 3c per bbl additional.
(d) No recent fixtures reported.

CRUDE OIL MARKETS

Prices in $ per bbl. of 42 U. S. gals. at the well. A. P. I gravity. Prices are effective as of 7 a. m. of dates as given

EASTERN FIELDS

Posted by Joseph Seep Purchasing Agency

(Effective Dec. 1, 1937, except Corning Sept. 2, 1937)

Penna. Grade Oil in Southwest Penna. Pipe Lines.....$1.88
Penna. Grade Oil in Eureka Pipe Lines (West Virginia).....$1.82
Penna. Grade Oil in Buckeye Pipe Lines (Macksburg, O.).....$1.70
Corning Oil in Buckeye Pipe Lines (Ohio)...$1.27

Posted by Other Companies

Tide Water Associated Oil Co.
Bradford-Allegany district (Penna. and N. Y.) (Effective Dec. 1, 1937).....$2.20
*The Pennzoil Co.: (Effective Dec. 1, 1937)
Penna. Grade Oil in National Transit Lines*$2.15
Ashland Oil & Transportation Co.:
Somerset Oil in Ashland Lines (Ky.):
(Effective Jan. 28, 1937)
Big Sandy River.....$1.42
Kentucky River.....$1.50

*The Pennzoil Co. posts $2.15 in Cochran, Franklin, Hamilton and Doolittle, Pa. fields; prices in other lower districts range down to $2.10 per bbl. at well.

MICHIGAN

Posted by Pure Oil Co.

Midland, Midland County (Jan. 5, 1938)....$1.12

Posted by Simrall Pipe Line Corp.

(Effective Dec. 29, 1937)

West Branch, Arenac, and equal grades.... $0.80

(Effective Jan. 8, 1938)

Beaverton, Crystal, Greendale, Porter and equal grades.....$1.12
Buckeye, Bentley, Billings, Tobacco and equal grades.....$1.095

CENTRAL STATES FIELDS

Posted by Ohio Oil Co.

(Effective Jan. 28, 1937)

Illinois, Princeton.....$1.35
Owensboro (Western Ky.).....$1.40

(Effective Nov. 20, 1937)

Lima, O.....$1.00

Posted by Stoll Oil Refining Co.

(Effective Feb. 1, 1937)

Stoll Pipe Line Oil (Ky.).....$1.40

CANADIAN FIELDS

Posted by Imperial Oil Limited

Western Ontario

(Effective Sept. 9, 1933)

Petrolia.....$2.10
Oil Springs.....$2.17

Alberta—Turner Valley

(Prices f.o.b. field tankage)

(Effective Jan. 5, 1938)

Crude Oil

40-40.9°	$1.14	53-53.9	$1.40
41-41.9	1.16	54-54.9	1.42
42-42.9	1.18	55-55.9	1.44
43-43.9	1.20	56-56.9	1.46
44-44.9	1.22	57-57.9	1.48
45-45.9	1.24	58-58.9	1.50
46-46.9	1.26	59-59.9	1.52
47-47.9	1.28	60-60.9	1.54
48-48.9	1.30	61-61.9	1.56
49-49.9	1.32	62-62.9	1.58
50-50.9	1.34	63-63.9	1.60
51-51.9	1.36	64-64.9	1.62
52-52.9	1.38		

Crude Naphtha, 65 grav. & above.....$2.14

Absorption Gasoline

90% Rec., 20 lb. Reid v.p.....$1.94
90% Rec., 17 lb. Reid v.p.....$2.08

MID-CONTINENT

Posted by Stanolind Crude Oil Purchasing Co., Jan. 28, 1937

	(In Oklahoma-Kansas)	(In North-North Central Texas)
	*Kansas)	
Below 29	$1.06	$0.96
29-29.9	1.08	0.98
30-30.9	1.10	1.00
31-31.9	1.12	1.02
32-32.9	1.14	1.04
33-33.9	1.16	1.06
34-34.9	1.18	1.08
35-35.9	1.20	1.10
36-36.9	1.22	1.12
37-37.9	1.24	1.14
38-38.9	1.26	1.16
39-39.9	1.28	1.18
40 & above	1.30	1.20

Above Stanolind prices met as follows:

Jan. 28, Continental Oil Co. met in Okla., Kans., and North Texas. Sinclair-Prairie met in North Texas and North Central Texas, Jan. 28, Stanolind's North Texas schedule. Same date, The Texas Co. met in North-North Central Texas.

Note: Stanolind prices in Okla.-Kans. are for quantities computed by 97% tank tables. In Texas, 100% tank tables are used effective Oct. 1, 1937, volume corrected to 60° F., and deduction for full b.s. & w. content.

*Effective Aug. 1, 1937, for Otis-Albert pools Rush-Barton counties, Kans., 13c less.

Posted by Carter Oil Co.

In Oklahoma

(Effective Jan. 28, 1937)

Below 25	$0.98	33-33.9	$1.16
25-25.9	1.00	34-34.9	1.18
26-26.9	1.02	35-35.9	1.20
27-27.9	1.04	36-36.9	1.22
28-28.9	1.06	37-37.9	1.24
29-29.9	1.08	38-38.9	1.26
30-30.9	1.10	39-39.9	1.28
31-31.9	1.12	40 and above...	1.30
32-32.9	1.14		

Above Carter schedule met Jan. 28 by the following companies: Sinclair-Prairie, Shell and Bransdall in Oklahoma-Kansas; Skelly Oil in Kansas; Tide Water in Oklahoma; Pure Oil in Oklahoma-Kansas, beginning with below 24 at $0.98 and ending with 40 & above at $1.30.

Posted by Magnolia Petroleum Co.

(Effective Jan. 28, 1937)

In Oklahoma, same schedule as Carter Oil, which see above, beginning with below 25, at $0.98 and ending with 40 & above, at $1.30.

In Texas: North and North Central, including Burkburnett, Archer, Henrietta, Electra, Comanche and Olden, same gravity and price schedule as Stanolind in North Texas, which see under Stanolind, beginning with below 29 at $0.96 and ending with 40 and above, at $1.20.

Beaumont, Tex.

(Effective Oct. 1, 1937)

Below 21°	$0.95	27-27.9	$1.15
21-21.9	0.98	28-28.9	1.17
22-22.9	1.01	29-29.9	1.19
23-23.9	1.04	30-30.9	1.21
24-24.9	1.07	31-31.9	1.23
25-25.9	1.10	32-32.9	1.25
26-26.9	1.13	33-33.9	1.27
		34 & above	1.29

TEXAS FIELDS

Posted by Humble Oil & Refining Co.

(**West Central Texas*)

(Effective Jan. 28, 1937)

Below 29	$0.96	35-35.9	$1.10
29-29.9	0.98	36-36.9	1.12
30-30.9	1.00	37-37.9	1.14
31-31.9	1.02	38-38.9	1.16
32-32.9	1.04	39-39.9	1.18
33-33.9	1.06	40 and above...	1.20
34-34.9	1.08		

*Includes Brown, Callahan, Coleman, Comanche, Eastland, Fisher, Haskell, Jones, Shackelford, Stephens, Throckmorton and Young counties.

Shell Petroleum Corp., effective Jan. 28, posts Humble's above schedule on Fisher county crude, plus these five lower grades, beginning with below 25 gravity at $0.88; 25-25.9, $0.90; 26-26.9, $0.92; 27-27.9, $0.94, and 28-28.9, $0.96; rest of schedule same as Humble's in West Central Texas.

Note: Effective Oct. 1, 1937, Humble prices are based on 100% tank tables at 60F.

**East Central Texas*

(Effective Jan. 28, 1937)

Below 29	$1.03	35-35.9	$1.17
29-29.9	1.05	36-36.9	1.19
30-30.9	1.07	37-37.9	1.21
31-31.9	1.09	38-38.9	1.23
32-32.9	1.11	39-39.9	1.25
33-33.9	1.13	40 and above...	1.27
34-34.9	1.15		

*Including Anderson, Cherokee, Limestone, Navarro counties.

Same date, Sinclair-Prairie met in Mexia Humble's above schedule.

PANHANDLE TEXAS

Posted by Humble Oil & Refining Co.

(Effective Jan. 28, 1937)

	Gray County	Carson-Hutchinson
Below 35	$0.96	$0.91
35-35.9	0.98	0.93
36-36.9	1.00	0.95
37-37.9	1.02	0.97
38-38.9	1.04	0.99
39-39.9	1.06	1.01
40 & above	1.08	1.03

Jan. 28, above prices met by Sinclair-Prairie and Magnolia in the entire area and by Continental in Carson-Hutchinson and by Texas Co. in Panhandle Sweet, same as Humble's Gray Co. and on Panhandle Sour, same as Carson-Hutchinson.

EAST TEXAS

(Effective May 22, 1937)

Stanolind, Humble, Shell, Sinclair-Prairie, Texas Co., and Magnolia.....$1.35

Shell also posted on Jan. 28, in Livingston area, Polk County, Texas, $1.27.

NORTHEAST TEXAS

(Posted by Humble, Jan. 28, 1937)

Talco.....$0.73

(Posted by Magnolia, Jan. 28, 1937)

Cass County and Panola County, Tex.:

Same gravity and price schedule as S. O. Louisiana posts for Rodessa, La., which see under that company.

(Posted by The Texas Co., Jan. 28, 1937)

Cass County.....$1.25

WEST TEXAS AND NEW MEXICO

Posted by Humble Oil & Refining Co.

(Effective Jan. 28, 1937)

(Including Andrews, Crane, Crockett, Ector, Glasscock, Howard, Winkler and Upton Counties, Texas and Lea county, New Mexico).

Below 26	$0.78	33-33.9	$0.94
26-26.9	0.80	34-34.9	0.96
27-27.9	0.82	35-35.9	0.98
28-28.9	0.84	36-36.9	1.00
29-29.9	0.86	37-37.9	1.02
30-30.9	0.88	38-38.9	1.04
31-31.9	0.90	39-39.9	1.06
32-32.9	0.92	40 & above	1.08
Pecos, West Texas			$0.91

Jan. 28, Magnolia met Humble in Crane, Upton, Howard, Glasscock, Mitchell and Winkler.

Shell Petroleum Corp., on Jan. 28, met Humble in Crane, Glasscock, Howard, Pecos (except Yates shallow pool), Winkler, and Upton counties, Tex., and in Lea County, N. Mex. On Jan. 28, Shell posted in Yates shallow pool in Pecos county, Tex., $0.81. June 4, 1937, Shell added Ector county to West Texas postings.

Jan. 28, Stanolind Oil & Gas Co. met Humble in Hendrick field, Winkler county.

Jan. 28, Texas Co. met Humble in Ward and Winkler counties, Tex., and Lea County, N. M.

April 20, 1937, Sinclair Prairie met Humble in Ward and Winkler, Tex. and Lea, N. M., counties, except that its gravity schedule ends with 36 and above, at $1.00.

Posted by Continental Oil Co.

(Effective Jan. 28, 1937)

Artesia, Jackson and Maljamar pools, N. M...$0.90

COLORADO

(Posted by Continental Oil Co., Effective Jan. 28, 1937)

Ft. Collins and Wellington

Below 29	$1.01	35-35.9	$1.15
29-29.9	1.03	36-36.9	1.17
30-30.9	1.05	37-37.9	1.19
31-31.9	1.07	38-38.9	1.21
32-32.9	1.09	39-39.9	1.23
33-33.9	1.11	40 & above	1.25
34-34.9	1.13		

Cannon City and Florence, Col.....$1.10

SOUTH AND SOUTHWEST TEXAS

All Shown Below Posted by Humble Oil & Refining Co.

(Effective Jan. 28, 1937)

Carroll, Clark, Darst Creek, Hilbig, Salt Flat and Zoboroski fields.....$1.09
Pettus.....$1.37 Van Zandt.....$1.10

Jan. 28, Magnolia met Humble in Darst Creek; posted $1.00 in Luling; $1.12 in Lytton Springs; $1.27 for Cleveland, and $1.15 in Hardin, both in Liberty county, Tex.

Jan. 28, 1937, The Texas Co. met Humble in Darst Creek.

Anahuac, Dickinson, Flour Bluff and Turtlebay

(Effective Jan. 28, 1937)

Below 31	$1.16	36-36.9	$1.28
31-31.9	1.18	37-37.9	1.30
32-32.9	1.20	38-38.9	1.32
33-33.9	1.22	39-39.9	1.34
34-34.9	1.24	40 and above	1.36
35-35.9	1.26		

Conroe, Raccoon Bend (Deep sand crude) Tomball and Satsuma

(Effective Jan. 28, 1937)

Below 29	$1.20	35-35.9	$1.34
29-29.9	1.22	36-36.9	1.36
30-30.9	1.24	37-37.9	1.38
31-31.9	1.26	38-38.9	1.40
32-32.9	1.28	39-39.9	1.42
33-33.9	1.30	40 & above	1.44
34-34.9	1.32		

Jan. 28, Magnolia met Humble in Tomball and Texas Co. met Humble in Conroe, beginning with 35-35.9 gravity.

(Continued on next page)

CRUDE OIL MARKETS

(Continued from preceding page)

South-Southwest Texas (cont'd)

Posted by Humble

**Mirando*

(Effective July 6, 1937)

Below 21	$0.96	31-31.9	$1.18
21-21.9	0.98	32-32.9	1.20
22-22.9	1.00	33-33.9	1.22
23-23.9	1.02	34-34.9	1.24
24-24.9	1.04	35-35.9	1.26
25-25.9	1.06	36-36.9	1.28
26-26.9	1.08	37-37.9	1.30
27-27.9	1.10	38-38.9	1.32
28-28.9	1.12	39-39.9	1.34
29-29.9	1.14	40 & above	1.36
30-30.9	1.16		

*Includes Duval, Jim Hogg, Webb and Zapata counties, Tex. and Heyser and Placedo crudes.

July 6, Magnolia posted same schedule as Humble in Mirando.

July 6, 1937, Texas Co. posted for Duval-Mirando, $0.96 for below 21, plus 2c differential, to $1.12 for 28 & above.

LOUISIANA-ARKANSAS

Posted by Standard Oil Co. of Louisiana

	*N. La.-Ark.	Rodessa, La.	So. La. Roanoke N. Crowley
	(Effective Jan. 28, 1937)		(Dec. 28,'37)
Below 21°	$0.90	$0.93	$0.90
21-21.9	for	for	.93
22-22.9	oil	oil	.96
23-23.9	Below	Below	.99
24-24.9	25°.	25°.	1.02
25-25.9	$0.92	$0.95	1.05
26-26.9	.94	.97	1.08
27-27.9	.96	.99	1.10
28-28.9	.98	1.01	1.12
29-29.9	1.00	1.03	1.14
30-30.9	1.02	1.05	1.16
31-31.9	1.04	1.07	1.18
32-32.9	1.06	1.09	1.20
33-33.9	1.08	1.11	1.22
34-34.9	1.10	1.13	1.24
35-35.9	1.12	1.15	1.26
36-36.9	1.14	1.17	1.28
37-37.9	1.16	1.19	1.30
38-38.9	1.18	1.21	1.32
39-39.9	1.20	1.23	1.34
40 & above	1.22	1.25	1.36

*Includes Caddo, Homer, Haynesville, Sabine, De Soto, Sarepta, Carterville, El Dorado, Bunkie and Miller county.

Smackover, Ark. $0.90

Urania, La. (Arkansas Fuel Oil Co., Jan. 28, '37) $1.02

Tepetate, La. (Continental Oil, Jan. 28, '37) ... 1.24

Jan. 28, 1937, Magnolia met S. O. La.'s No. La.-Ark. gravity and price schedule in Pine Island, Haynesville, Bull Bayou and Cotton Valley, La., and in Eldorado and Rainbow districts, Ark.; and met S. O. La.'s Rodessa prices; and in Lockport, Iowa, Cameron Meadow, La., posted Humble's gravity and price schedule on Mirando. El Dorado East Field, Ark. price same as Smackover, effective Jan. 28, '37.

Jan. 28, The Texas Co. met S. O. La. in N. La., except that its gravity schedule begins with below 27 at $0.94. It posted $1.37 for Garden Island, La., $1.24 for LaFitte, La. and $0.90 for Smackover.

***GULF COASTAL FIELDS**

Posted by Humble Oil & Refining Co. and The Texas Co.

	(Effective Jan. 28, 1937) Humble	Texas	Saxet (Humble) (July 6 '37)
Below 18	$0.95	$0.90	....
18-18.9	for	0.92	....
19-19.9	below	0.94	....
20-20.9	21°	0.96	$1.01
21-21.9	0.98	0.98	1.03
22-22.9	1.01	1.01	1.05
23-23.9	1.04	1.04	1.07
24-24.9	1.07	1.07	1.09
25-25.9	1.10	1.10	1.11
26-26.9	1.13	1.13	1.13
27-27.9	1.15	1.15	1.15
28-28.9	1.17	1.17	1.17
29-29.9	1.19	1.19	1.19
30-30.9	1.21	1.21	1.21
31-31.9	1.23	1.23	1.23
32-32.9	1.25	1.25	1.25
33-33.9	1.27	1.27	1.27
34-34.9	1.29	1.29	1.29
35-35.9	1.31	for	1.31
36-36.9	1.33	oil	1.33
37-37.9	1.35	34°	1.35
38-38.9	1.37	and	1.37
39-39.9	1.39	above.	1.39
40 and above	1.41	....	1.41

†Refugio

(Effective July 6, 1937)

Posted by Humble

20-20.9	$1.01	23-23.9	$1.07
21-21.9	1.03	24-24.9	1.09
22-22.9	1.05	25-25.9	1.11

Rest of schedule same as Humble's Gulf Coastal crude prices.

†Includes Saxet, Greta, O'Connor-McFadden, Taft, Plymouth and Tom O'Connor crude.

*Humble's prices apply in these Texas fields: Amelia, Barbers Hill, Goose Creek, Hull, Liberty, Mykawa, Orange, Pierce Junction, Raccoon Bend, (shallow sand), Sugarland, Thompsons, and West Columbia. Same prices also apply, effective Feb. 1, 1938, in Clinton, Tex., posted by Stanolind Crude Oil Purch. Co.

Jan. 28, Sinclair-Prairie met above Humble schedule in full.

July 6, 1937, The Texas Co. posted for Refugio, which includes Greta, Saxet and Taft: $1.01 for below 21, plus 2c differential, to $1.17 for 28 & above.

Texas Co. postings in Gulf Coastal Texas include: Arriola, Five Corners, Ganado, Humble, Liberty, Magnet, Manvel, Markham, Mauritz, McFaddin, Pickett Ridge, Port Neches, Sour Lake, West Columbia and Withers. In Gulf Coastal Louisiana: Bay St. Elaine, Caillou Island, Dog Lake, Four Isle, Gillis, Horseshoe Bayou, Iberia, Lake Barre, Lake Pelto, Leesville and Port Barre.

ROCKY MOUNTAIN FIELDS

Posted by Stanolind Oil & Gas Co.

(Effective Jan. 28, 1937)

Salt Creek, (except Tensleep crude), Midway and Dutton Creek, Wyo., same schedule as Stanolind posts in Oklahoma, Kansas which see under Mid-Continent crude on previous page.

(Effective Jan. 6, 1938)

Tensleep, Salt Creek field $0.70

(Effective Jan. 28, 1937)

Greybull-Torchlight	$1.30
Iles, light, Col.	1.18
Iles, heavy	1.12
Hogback, N. M.	1.33
Big Muddy	1.23
Elk Basin, light	1.30
Grass Creek, light	1.30
Frannie light	0.82

(Effective Nov. 4, 1936)

Grass Creek, heavy	$0.62
Frannie heavy	0.62
Hamilton Dome, Wyo.	0.57

Posted by Ohio Oil Co.

(Effective Jan. 28, 1937)

Elk Basin, Wyo.	$1.30
Grass Creek, light	1.30
Rock Creek	1.205
Lance Creek	0.97

(Effective Nov. 16, 1937)

Sunburst, Mont.	$0.90

Posted by Continental Oil Co.

(Effective Jan. 1, 1938)

Cat Creek, Mont.	$1.30

(Effective Jan. 28, 1937)

Big Muddy, Wyo.	1.18
Lance Creek, Wyo.	0.97

CALIFORNIA, *Posted by Standard Oil of California*

All gravities above those quoted take highest price offered in the field. Prices effective Feb. 26, 1936, except Huntington Beach, Playa del Rey, Santa Fe Springs, Kern Front, Signal Hill (Long Beach) effective March 7, 1936; Elk Hills effective June 22, 1936; Lakeview Area, Aug. 19, 1936; El Segundo and Wilmington, Oct. 15, 1937; Greeley-Canal, Dec. 22, 1937.

Gravity	Signal Hill (Long Beach) El Segundo †Wilmington	Seal Beach	Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda Brea Canon	Athens Rosecrans	Dominguez	Torrance	Richfield	Whittier East Coyote (La Habra)	Montebello	West Coyote Hills	Santa Fe Springs	‡Newhall and others	Mountain View	Elk Hills	Buena Vista Hills Midway-Sunset Lakeview Area	Greeley-Canal (Kern County)	Lost Hills	Coalinga	Wheeler Ridge
14-14.9	$0.80	0.79	0.74	0.78	0.79	0.80	0.76	....	....	0.80	0.76	0.76	0.77	0.78	....	0.70	....	0.70	0.70	.....	0.70	0.70	....
15-15.9	.80	.79	.74	.78	.79	.80	.76	....	....	.80	.76	.76	.77	.78	....	.70	....	.70	.70	.....	.70	.70	....
16-16.9	.80	.79	.74	.78	.79	.80	.76	....	....	.80	.76	.76	.77	.78	....	.70	....	.70	.70	.....	.70	.70	....
17-77.9	.80	.79	.74	.78	.81	.80	.76	....	....	.80	.76	.76	.77	.78	....	.70	....	.70	.70	.....	.70	.70	....
18-18.9	.80	.79	.74	.78	.84	.80	.78	....	....	.82	.76	.76	.77	.78	....	.70	....	.70	.70	.....	.70	.70	....
19-19.9	.82	.79	.74	.82	.87	.84	.81	....	....	.85	.76	.78	.77	.78	....	.70	.70	.74	.74	.....	.74	.71	.70
20-20.9	.85	.79	.74	.85	.90	.88	.84	....	....	.88	.78	.82	.77	.80	....	....	.70	.78	.78	.....	.78	.72	.70
21-21.9	.88	.79	.74	.89	.93	.93	.88	....	....	.91	.80	.85	.77	.84	.78	....	.73	.82	.82	.....	.82	.74	.70
22-22.9	.92	.82	.74	.92	.96	.98	.92	....	....	.93	.84	.89	.79	.88	.78	....	.77	.87	.87	.....	.86	.78	.72
23-23.9	.95	.86	.77	.96	.99	1.02	.96	.84	.79	.96	.88	.93	.82	.92	.78	....	.80	.92	.92	.....	.90	.82	.76
24-24.9	.99	.91	.80	1.00	1.02	1.06	.99	.88	.81	.99	.91	.96	.85	.96	.82	....	.84	.97	.97	.....	.94	.86	.79
25-25.9	1.03	.95	.82	1.03	1.05	1.11	1.03	.93	.83	1.02	.95	....	.89	.99	.86	....	.88	1.01	1.01	.....	.98	.90	.83
26-26.9	1.06	1.00	.85	1.07	1.09	1.16	1.06	.98	.86	1.05	.98	....	.92	1.03	.90	....	.91	1.06	1.06	.....	1.02	....	....
27-27.9	1.10	1.05	.88	1.11	1.12	....	1.10	1.03	.88	....	1.02	....	.96	1.06	.95	....	.95	1.10	1.10	$0.84	1.06	....	....
28-28.9	1.14	1.10	.90	1.14	1.15	....	1.14	1.07	.90	....	1.06	....	.99	1.10	.99	....	.99	1.15	1.15	.88	1.10	....	....
29-29.9	1.17	1.15	.93	1.18	1.18		1.17	1.12	.93	....	1.09	....	1.03	1.14	1.03	....	1.02	1.20	1.20	.92	1.14	....	....
30-30.9	1.21	1.19	.95	1.22	1.21		1.21	1.17	.95	....	....	....	1.07	1.17	1.08	....	1.06	1.25	1.25	.95	1.18	....	....
31-31.9					1.24		1.24	1.22	.97	....	....	....	1.11	1.21	1.12	....	1.09	1.29	1.29	.99			
32-32.9		*Elwood Terrace			1.27		1.27	1.27	1.00	....	....	....	1.14	1.25	1.16	....	1.13	1.34	1.34	1.03	Kettleman Hills		
33-33.9	....	1.28	....	....	....		....	1.32	....	....	....	....	1.18	1.28	1.20	....	1.17	1.38	1.38	1.07	....	1.19	....
34-34.9	....	1.32	....	....	....		....	1.37	....	....	....	....	1.22	1.32	1.25	....	1.20	....	....	1.11	....	1.23	....
35-35.9	....	1.35	....	....	....		....	1.42	....	....	....	....	1.25	....	1.29	....	....	....	....	1.15	....	1.27	....
36-36.9	....	1.39	....	....	....		....	1.46	....	....	....	....	1.29	....	1.33	....	....	....	....	1.19	....	1.31	....
37-37.9	....	1.43	....	....	....		....	1.51	....	....	....	....	1.32	....	1.37	....	....	....	....	1.23	....	1.35	....
38-38.9	....	....	....	....	....		....	1.56	....	....	....	....	1.36	....	1.42	....	....	....	....	1.27	....	1.39	....
39-39.9	....	....	....	....	....		....	1.61	....	....	....	....	1.40	....	....	....	....	....	....	1.31	....	1.43	....
40-40.9	....	....	....	....	....		....	1.66	....	....	....	....	1.43	....	....	....	....	....	....	1.34	....	....	....
41-41.9	....	....	....	....	....		....	....	....	....	....	....	....	....	....	....	....	....	....	1.38	....	....	....
42-42.9	....	....	....	....	....		....	....	....	....	....	....	....	....	....	....	....	....	....	1.41	....	....	....
43-43.9	....	....	....	....	....		....	....	....	....	....	....	....	....	....	....	....	....	....	1.45	....	....	....
44-44.9	....	....	....	....	....		....	....	....	....	....	....	....	....	....	....	....	....	....	1.49	....	....	....
45-45.9	....	....	....	....	....		....	....	....	....	....	....	....	....	....	....	....	....	....	1.53	....	....	....
46-46.9	....	....	....	....	....		....	....	....	....	....	....	....	....	....	....	....	....	....	1.56	....	....	....
47-47.9	....	....	....	....	....		....	....	....	....	....	....	....	....	....	....	....	....	....	1.60	....	....	....
48-48.9	....	....	....	....	....		....	....	....	....	....	....	....	....	....	....	....	....	....	1.64	....	....	....

F. O. B. Standard Pipe Line

*F. o. b. ship.

‡Also McKittrick, Kern River. Kern Front and Round Mountain $0.70 thru 19.9 gravity; no higher gravity quoted.

†Wilmington prices differ on gravities below 18.9. Prices are: 14-16.9, $0.75; 17-17.9, $0.77; and 18-18.9, $0.79; rest of schedule same as Signal Hill.

CLASSIFIED

Positions Wanted

SALES, SERVICE, AND MAINTENANCE ENGINEER with working knowledge automotive and oil industry. Six years experience in Southwest. D. E. Hamilton, 1607 E. 12th St., Tulsa, Okla.

EXECUTIVE

Financial — Accounting with wide knowledge of Operating and Sales—Metropolitan New York and New Jersey, wants a connection. Willing to move, if necessary. Twelve years with one company and best reason in the world for being out of job at present time.

Address Box 502.

EXPERT in appraisals, real estate and personal property, tax claims and public relations will accept permanent connection or temporary contract. Eleven years specialized experience with major oil company. Address Box 500.

For Sale

WHOLESALE GASOLINE AND OIL DISTRIBUTING BUSINESS. Storage capacity of 54,000 gallons. Large territory. Established 1922. Good reason for selling. Address Box 501.

CHAIN GAS STATIONS

60 outlets Northern Ohio. Sold over 2 million gallons 1937; A-1 reputation; modern equipment; major products, can change; 165,000 bulk storage; good oil sales. For details write

THE APPLE CO. BROKERS EST. 1905
1836 Euclid Ave. Cleveland, Ohio

Business Opportunities

SALE AND PURCHASE
of
GASOLINE-and-OIL COMPANIES
BULK PLANTS and
JOBBING CONCERNS
Confidentially Negotiated
WM. WISHAR
Broker of Oil Marketing Properties
2331 Grandview, Cleveland Heights, O.

Professional Services

ANTI-KNOCK VALUES
DETERMINATIONS
The Gray Industrial Laboratories
Chemists and Engineers
Specialists on Petroleum Products
961-976 Frelinghuysen Ave.,
NEWARK, N. J.
Telephone Bigelow 3-4020

PHOENIX
CHEMICAL LABORATORY
An Exclusive Petroleum Testing Laboratory
Equipped For All Known Tests & Research in Petroleum Products
3953 Castello Ave., Chicago
Telephone—Spalding 3578

ROYAL E. BURNHAM
Attorney-at-Law
Patent and Trade Mark Practice Exclusively
511 Eleventh Street, N. W.
Washington, D. C.

Index to Advertisers

This index is published as a convenience to the reader. Every care is taken to make it accurate, but National Petroleum News assumes no responsibility for errors or omissions.

Acheson Colloids Corp. 53
Allis Co., Louis ..... Insert
Aluminum Co. of America 5
American Mineral Spirits Co. .....
American Telephone & Telegraph Co. .....
Anderson-Prichard Oil Co. 8

Bakelite Corp. 59
Battenfeld Grease & Oil Corp. .....
Berry Sons' Co., James B 55
Blackmer Rotary Pump Co. 50
Bowser & Co., Inc., S. F. .....
Bradford Oil Refg. Co. .....
Brodie Co., Inc., Ralph N. .....
Buckeye Iron & Brass Works 2

Canfield Oil Co. .....
Champion Spark Plug Co. .....
Champlin Refg. Co. .....
Chevrolet Motor Division, General Motors Sales Corp. .....
Chicago Bridge & Iron Co. .....
Cities Service Oil Co. .....
Conewango Refg. Co. 56
Curtis Pneumatic Machinery Co. 54
Cushing Refg. & Gasoline Co. .....

Deep Rock Oil Corp. .....
du Pont de Nemours & Co., E. I. ...
Dyestuffs & Chemicals, Inc. .....

Edwards & Co., Vincent .....
Electric Hose & Rubber Co. .....
Electric Storage Battery Co. 39
Erie Meter Systems, Inc. .....
Ethyl Gasoline Corp. 7
Exide Batteries .....

Fairbanks-Morse & Co. .....
Farrell Mfg. Co. 14
Ford Motor Co. .....
Freedom Oil Works Co. .....

Gaylord Container Corp. .....
General American Transportation Corp. .....
General Electric Co. .....
Goodall Rubber Co. .....
Goodrich Rubber Co., B. F. 3
Goodyear Tire & Rubber Co. 37
Graver Tank & Mfg. Co., Inc. .....
Gulf Oil Corp. .....

Hays Mfg. Co. .....
Heekin Can Co. .....
Hinde & Dauch Paper Co. .....

International Harvester Co. .....
International Petroleum Exposition 11

Johnson Co., S. T. .....
Johnston & Jennings Co. .....

Kidde & Co., Inc., Walter .....

Leland Electric Co. .....

McDonald Mfg. Co., A. Y. 1
Master Electric Co. .....
Mid-Continent Petroleum Corp. ..... Fourth Cover
Morrison Bros. .....

National Meter Co. .....
National Petroleum Mutual Fire Insurance Co. 59
Neptune Meter Co. .....
New York Lubricating Oil Co. .....

Ohio Oil Co. 63
Oil Equipment Mfg. Co. 6
Overhead Door Corp. 55

Paraflow .....
Penola, Inc. .....
Philadelphia Valve Co. 9
Pittsburgh Equitable Meter Co. .....
Pittsburgh Plate Glass Co. .....
Pure Oil Co. .....
Pyroil Co. 51

Republic Oil Co. .....
Roper Corp., Geo. D. 10

Schrader's Son, A. 52
Service Station Equipment Co. .....
Shand & Jurs Co. .....
Shell .....
Silent Glow Oil Burner Corp. .....
Skelly Oil Co. .....
Smith Meter Co. 4
Southern Steel Barrel Co. .....
Southwest Pump Co. .....
Standard Oil Co. of N. J. .....
Standard Steel Works ..... Third Cover
Sun Oil Co. .....

Texas Co., The .....
Thiokol Corp. 45
Tokheim Oil Tank & Pump Co. ..... Second Cover

U. S. Air Compressor Co. 15
U. S. Steel Corp. 12-13
Universal Oil Products Co. 35

Viking Pump Co. 60

Wayne Pump Co. .....

Coming Meetings

Indiana Independent Petroleum Assn., Spring Convention and Refiners and Suppliers Exhibit, Hotel Severin, Indianapolis, Ind., March 2, 3 and 4.

Iowa Independent Oil Jobbers Assn., and trade exhibit, Fort Des Moines Hotel, Des Moines, Iowa, March 2, 3 and 4.

American Society for Testing Materials, Seneca Hotel, Rochester, N. Y., March 7 to 12.

Society of Automotive Engineers, National Aeronautic Meeting, Mayflower Hotel, Washington, D. C., March 10 and 11.

American Assn. of Petroleum Geologists, 23rd annual meeting, Roosevelt Hotel, New Orleans, La., March 16 to 18.

Western Metal Congress and Exposition, Biltmore Hotel, Los Angeles, Calif., March 21 to 25. (Petroleum Division has sessions.)

South Dakota Independent Oil Men's Association, annual convention, Cataract Hotel, Sioux Falls, S. D., March 22 and 23.

American Society of Mechanical Engineers, Los Angeles, Calif., March 23, 24 and 25.

American Petroleum Institute, division of production, spring meeting, southwestern district, Blackstone Hotel, Fort Worth, Texas, March 24 and 25.

Michigan Petroleum Assn., Statler Hotel, Detroit, March 24 and 25.

Society of Automotive Engineers, National Passenger Car Meeting, Hotel Statler, Detroit, Mich., March 28, 29 and 30.

Independent Oil Men's Assn. of New England, annual convention, Bradford Hotel, Boston, Mass., April 7.

National Petroleum Assn., Cleveland, Ohio, April 13 to 15.

Petroleum Industry Electrical Assn., Rice Hotel, Houston, Texas, April 13, 14 and 15.

American Petroleum Institute, division of production, Eastern District, William Penn Hotel, Pittsburgh, Pa., April 14 and 15.

Society of Automotive Engineers, Inc., National Tractor meeting, Schroeder Hotel, Milwaukee, Wis., Apr. 14 and 15.

American Chemical Society, Dallas Texas, April 17 to 21.

American Petroleum Institute, division of production, Pacific Coast district, spring meetings, Biltmore Hotel, Los Angeles, Calif., April 19.

Greater New York Safety Council, Hotel Astor, New York City, April 19, 20, 21.

American Institute of Mining and Metallurgical Engineers, Open Hearth Conference, Buffalo, N. Y., April 20, 21 and 22.

Western Petroleum Refiners Assn., 26th annual meeting, Hotel Arlington, Hot Springs, Ark., April 25, 26 and 27.

Society of Automotive Engineers, Inc., Section-Regional Transportation & Maintenance meeting, (Public Utility Fleet Operations), Hotel Statler, Cleveland, Ohio, April 28 and 29.

Oil Burner Institute, annual meeting, Palmer House, Chicago, Ill., sometime in April.

Natural Gasoline Assn. of America, 17th annual convention, Hotel Tulsa, Tulsa, May 11 to 13.

National Oil Scouts Assn. of America, Tulsa, Okla., May 12, 13 and 14.

International Petroleum Exposition, Tulsa, Okla., May 14 and 21.

American Petroleum Institute, mid-year meeting, Allis and Lassen Hotels, Wichita, Kans., May 23, 24 and 25.

7th Annual Petroleum and Natural Gas Conference, Penna. State College, Penna. Grade Crude Oil Assn., and Penna. Natural Gas Men's Assn., State College, Pa., May 27, 28.

Society of Automotive Engineers, summer meeting, The Greenbrier, White Sulphur Springs, W. Va., June 12 to 17.

Pennsylvania Grade Crude Oil Assn., William Penn Hotel, Pittsburgh, Pa., June 16, 17 and 18.

American Society of Mechanical Engineers, St. Louis, Mo., June 20 to 24.